

Medical Times

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CRYSTALLINE INSULIN VERSUS PROTAMINE

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PROS AND CONS OF PROTAMINE

William S. Collens

MENTAL HYGIENE NOTES

Frederick L. Patry

OTHER TOPICS

MORRIS L. GROVER, M.D., M.P.H. . . TO BE EXPECTED—MEDICAL
PICKETING . . . SOCIOOMETRY . . . THE ECONOMICS OF OVULATION
. . FAIR GODS . . . TWO-EDGED SWORDS . . DRUGGING IN AN AGE
OF NIHILISM . . . THE PASTEUR INSTITUTE . . THE LIBRARY OF THE
COLLEGE OF PHYSICIANS OF PHILADELPHIA . . THE PLACE OF FRANCOIS
QUESNAY, M.D., IN THE HISTORY OF ECONOMIC THOUGHT . . CARREL
THE SEER . . CANCER OF THE STUMP OF THE CERVIX OF THE UTERUS
. . NEWS AND NOTES . . ASSOCIATED PHYSICIANS OF LONG ISLAND
. . CONTEMPORARY PROGRESS . . MEDICAL BOOK NEWS



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TABLETS • CAPSULES

Editorials

Morris L. Grover, M.D., M.P.H.

After many years of able and faithful service Dr. Walter Clarke has resigned as a member of the editorial board which conducts the Contemporary Progress department of this journal. Public Health, Industrial Medicine and Social Hygiene, therefore, will hereafter be in the hands of his successor, Dr. Morris L. Grover, Chief of the Bureau of Preventable Diseases, State Department of Public Health, Providence, Rhode Island. The Chapin tradition in Rhode Island sets high standards and the editorship of Dr. Grover marks a distinguished affiliation.

To Be Expected—Medical Picketing

Well, the 430 embattled doctors have made public their "medical declaration of independence" and fired a shot heard 'round the world. The *New York Times* suggests that the present move is likely to result in a split in the ranks of American medicine similar to the split in the ranks of American labor. Thus we may have a medical A.F.L. and a medical C.I.O. Perhaps the Spanish war is about to be repeated here.

The *Times* remarks that "There are indications that the open defiance of the authority of the association [the A.M.A.] is spreading among many of the rank and file of American physicians who had been silently opposing the attitude of their leaders and had been waiting for prominent members in their ranks to take the initiative." Just so. A certain respectability will now have been acquired by our left wing and so it won't be long before an army of pickets appears with banners before the buildings of our medical societies. Doubtlessly those banners will bear inscriptions such as: "The Medical Society of the County of _____ Is Against Progress"; "The _____ Academy of Medicine Does Not Believe that the Health of the People is a Direct Concern of the Government"; "The _____ Medical Association Thinks that a Na-

tional Health Policy Directed Toward All Groups of the Population Should Not Be Formulated"; "Down with the Reactionary A.M.A."

The American Medical Association offers principles; certain medical school and hospital groups invite the Government to offer them subsidies.

This is what we have feared right along. This is what certain elements in the Government have been waiting for.

The Economics of Ovulation

THE induction of ovulation in one type of sterile women by the injection of the hormone-carrying serum of pregnant mares marks a notable advance.

Emil Novak, in a recent address in the course of which he discussed transfusion of the blood of pregnant women into sterile women characterized by non-ovulation, related the traditional folklore legend of Louisiana regarding the induction of pregnancy in sterile women through the drinking of the urine of pregnant females. No doubt such a custom is to be found in the folklore of other countries.

We are perhaps to witness a step from the primitive practice to which we have alluded to the selling of blood by pregnant women to their sterile sisters, in order to pay the hospital costs of confinement.

If it should be found that the citration and refrigeration of such blood does not alter its potentiality, the economic exchange suggested should be facilitated.

Two-Edged Swords

AGAINST the palliative effects of substances dropped industriously into millions of American nostrils must be weighed the functional demoralization of the cilia that direct drainage, the pulmonary pathology that sometimes ensues, and the facilitation of the passage of infective viruses, such as that of poliomyelitis, into dangerous areas.

The effects of such agents seem to parallel those of the old-time pessary, which Professor Skene used to say did just about as much harm as good.

Of course it all comes down to skill and judgment, whether it be pessaries or shrinking medicaments.

Drugging in an Age of Nihilism

CREAT landmarks in therapeutic progress have been the revolt against bleeding and that against the abuse of whisky. At the risk of indictment for heresy, *lèse majesté* and libel we venture to protest against the intensive and continuous nauseation of patients with codeine, the frequent compromising—to put it mildly—of cardiac patients with digitalis, and the very dubious saturation of the ill with acetylsalicylic acid. We should like to see some comparative studies made in hospitals of wards using a minimum—or none—of such drugs and wards conducted on the usual objectionable basis. Mortality rates would tell the story.

The situation is an ironical one. An age of nihilism and skepticism uses some drugs more recklessly and fanatically than was ever the case before.

Fair Gods

HARVEY CUSHING, in his *Consecratio Medici and Other Papers*, tells the following story:

One of our highly trained, young physicians, long-time resident in a teaching hospital, recently confessed to me that he had just been through one of the most valuable experiences of his ten years of medical study. He had passed his summer on an island where was a large summer community, and in the absence of any local physician he had volunteered to hold office hours and prescribe for the needs of his fellow sojourners, his principal armament being a thermometer, his microscope, some bandages, and a few simple drugs. Never before had his powers of observation and his common sense been so thoroughly exercised.

A confession of a valuable experience. This "highly-trained" young man, product of the modern system of medical education, was accidentally enabled to function as a general practitioner for a pe-

riod. Greatly to his credit, he found the experience highly stimulating and constructive. Descending from his ivory tower, he found himself in a world challenging his talents just as definitely and engagingly as the sphere he had left for the moment.

If there were only some way in which we could more often inveigle such men out of their ivory towers and show them other worth while vineyards, we verily believe there would be many desertions.

But *confession!* What a word for such a privilege!

The author of the famous *Ben Hur* once wrote a novel that was less famous but which brilliantly described an attempt in one of the old kingdoms of the earth to bring up a young heir to the throne in a rarefied atmosphere—undesecrated, unsullied, pure. This was *The Fair God*. Our ivory tower people always make us think of the central figure of that novel.

It's just too bad about our fair gods.

Sociometry

SEPTEMBER, 1937, witnessed the appearance of a new Journal—*SOCIO-METRY: A Journal of Inter-personal Relations*.

The critical observer may question the need of another journal in these days of "too much writing." However, when there appears a new emergence of concept related to practice as well as theory in the art and science of inter-personal relations, one can not refrain from being grateful to the originators of such a publication. We have to thank Dr. Jacob L. Moreno, Director of Beacon Hill at Beacon, New York, an institution for the study of sociometry and the treatment of varying degrees of personality maladjustments through the means of "psychodramatics," which utilizes the unique therapeutic theatre of this institution.

"Sociometry" is a quarterly, the editor of which is a well-known professor of psychology, Dr. Gardner Murphy, of Columbia University. Dr. Moreno, the publisher, is supported by a number of renowned contributing editors: Gordon W. Allport, Hadley Cantril, William H. Kilpatrick, Nolan D. C. Lewis, Eduard D. Lindemann, Robert S. Lynd, Theodore M.

Newcomb, Helen Jennings, and Gertrude Blanchot Tone. Issues will appear in January, April, July, and October although double numbers may be published on occasion. Annual subscription is \$5.00.

The "Editorial Foreword" states that the purpose of "Sociometry" is to provide a medium whereby research workers in various fields of inter-personal relations may critically pool their contributions. "To enable the human biologist to get light on his problems from the ethnologist, to guide the sociologist in the understanding of the biological peculiarities of human groups, to enable the psychologist to see the interplay of economic, physiological, and political facts in shaping the personal development of the individual human subject. . . . The primary task is to see the contribution of the arts as well as of the sciences to the understanding of human nature; the broadening of the recognition that man is approachable, not only from the avenue of biochemistry and genetics, but from the avenue of comparative linguistics, mythology, religion, and history of the arts and sciences . . . We shall, of course, achieve no such comprehensive integration but this is the goal toward which our contributions wish to aim."

This publication will seek to utilize to the full the various potentialities and possibilities of "Sociometry"—a device for ascertaining and measuring the positive social resources of each individual to each other individual in a social world, a means of describing the degrees and forms of intimacy longed for by each person in relation to each of his fellows."

The editors invite constructive criticism in the furtherance of this useful technique, the understanding and modi-

fication of interpersonal relationships.

The initial copy of Volume I is a double number combining the July and October issues. The leading article is contributed by Dr. Moreno under the title, "Interpersonal therapy and the Psychopathology of Inter-personal Relations." The reader who wishes a thorough grasp of the significance of the sociometric approach would do well to digest thoroughly this important contribution. Technical words such as "auxiliary ego," "psychodrama," "tele," as well as diagrammatic techniques to illustrate "social atoms," are succinctly delineated.

The high calibre of other contributions in this volume may be gleaned by noting the following articles and their contributors: "Social Attraction Patterns in A Rural Village" by George A. Lundberg; "Racial Cleavage in Negro-White Groups" by Joan H. Criswell; "An Experimental Approach To The Study of Attitudes" by Muzafer Sherif; "Structure of Leadership" by Helen Jennings; "Public Opinion Polls" by Daniel Katz and Hadley Cantril.

There are a number of other worthwhile contributions but sufficient sampling, it is hoped, has been given to indicate the range and character of the contributions. The volume is concluded with two memorial sketches relative to Dr. William A. White and Dr. Alfred Adler. A detailed book review by Eduard C. Lindemann of "Ideology and Utopia" by Carl Manheim rounds out the present volume.

The physician, psychiatrist, sociologist, psychologist, educator, and all those concerned in the broader aspects of human inter-relationships will welcome this timely journal. *Bon Voyage!*

—F. L. P.



THE PEOPLE VERSUS SYPHILIS

During the past twenty-five years, tuberculosis has been reduced by one-half. I am sure that during the next quarter century even more can be accomplished in the control of syphilis if public education and the provision of better medi-

cal care for its victims can be stimulated by voluntary agencies in the same way as anti-tuberculosis measures were stimulated. The techniques need to be different, but the general purposes are the same.

—THOMAS PARRAN, JR., M. D.
J. Social Hygiene, Oct., '37

PROTAMINE INSULIN AND

Diabetes Treatment

THE subject of diabetes has become so complex that it not only cannot be covered in one evening's discussion, but also nobody can keep fully up to date on its development. A few years ago it seemed possible to keep track of the world literature on diabetes and correlate the various discoveries and theories. Now the developments are so numerous, appearing in so many laboratories and so many journals, and furthermore they are often so confusing or conflicting, that it is impossible for any person to speak authoritatively concerning them. All that can be given, therefore, is a statement of individual opinion, and amid all the contradictory opinions of many writers the general practitioner can only choose which belief he will follow.

Protamine insulin is a combination of ordinary insulin with protamine for the purpose of delaying absorption and thus producing a more gradual and prolonged effect. Its introduction has started a wave of investigation along this line, and several other compounds have been devised and tested. An entirely different method of accomplishing this same type of result has been proposed by Sahyun, who has undertaken to prepare a pure crystalline insulin with diminished solubility in the body fluids leading to a slower absorption. This crystalline insulin has for some time been supplied for clinical trials by the Stearns Company, and several authors have reported favorably concerning its delayed action as compared with the usual insulin preparations.

THE discussion of these retarded forms of insulin opens up the question of diabetic treatment in general. The manner of

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606

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using the new insulin will be governed by the ideas of each physician on diabetes and its treatment in general. We may therefore consider the present status of these more fundamental questions, in order to reach a conclusion concerning the treatment with protamine insulin.

First, there is the old time question, What is diabetes? The recent important discoveries concerning the influence of other glands have not overthrown the belief that diabetes is essentially a deficiency of insulin in the body. Pluriglandular influences may either aggravate or mitigate the manifestations of diabetes, but the occurrence of true diabetes with an efficiently functioning pancreas has never yet been demonstrated, also no successful treatment of clinical diabetes by means of any other gland has yet been discovered. This definition also indicates the essential unity of diabetes, and if there are true "insulin resistant" cases which stand in a class apart, they are at least very rare and their exact nature remains to be established. Accordingly, in treating diabetes with insulin we are not merely palliating a symptom but are correcting the fundamental deficiency which constitutes the disease.

The next question pertains to the nature of diabetes, particularly whether it represents a disturbed utilization of carbohydrate alone or of all food materials. I believe that there is in the literature clear and decisive proof that the diabetic disorder is related to the total metabolism and body weight. This experimental and clinical demonstration has not up to the present been attacked by any scientific methods or evidence, and unless it can be overthrown the dominant importance of the total calories and body weight must be recognized in diabetic therapy.

MEDICAL TIMES • DECEMBER, 1937

THIS question is connected with the various diet fads which have received unnecessary prominence for some years past. It seems desirable to emphasize that arbitrary standardization of diets is inadvisable, and no real contribution to medicine is ever made except by proof of the underlying principles. There was first a wave of high fat diets, which in Europe was carried to extremes which would never be adopted in this country. Newburgh and Marsh and their followers introduced a valid form of high fat diets, inasmuch as their records show that they restricted total calories in proportion to the severity of the cases. They were thus able to keep their patients sugar-free and in good condition, but they did not demonstrate any new principle or any superiority of their diet plan. Accordingly, there was no obstacle when a wave of high carbohydrate diets arose, likewise without proof of any new principles. My own work together with that of Sherrill had proved long before that very wide shifts in the fat and carbohydrate composition of the diet can be made with very little change in the insulin requirement, when the total calories are left unchanged, and examples of diets containing hundreds of grams of carbohydrate were thus published in 1922 and 1923. The authors of the high carbohydrate diets seemed to imagine that they had discovered something new in applying this principle indiscriminately to all patients. The serious complaint which must be made against the authors of these extreme and arbitrary diet forms is that they have had large clinical and experimental facilities for a considerable number of years, and they have not furnished anything resembling scientific proof of the advantage of any method. Therefore I feel unable to say positively what composition of diet is best in general. When the fundamental consideration of total calories and body weight is observed, it is undoubtedly possible to treat diabetes successfully with either high fat, high carbohydrate or intermediate diets. For reasons to be stated, I retain my preference for the balanced or moderate plan of diet. I still do not exceed the 150 grams of carbohydrate which I proposed as the daily limit in 1922, unless in exceptional cases. In par-

ticular, I still believe in individualizing the diet to suit the individual need.

IN DEALING with any condition we must define our ideal of treatment. My own ideal in the management of diabetes is to restore the patient to normal. This ideal is also held probably by the majority of physicians, but there is strong opposition to it in considerable circles, including some specialists. Also, the introduction of protamine insulin has prompted a number of authors to publish records of their previous results with regular insulin, and it is a shock to see the sugar curves which seem to have been actually obtained in practice by many of those who professed to follow the ideal of normal standards. On the other hand the assertion is made in several quarters that there is no harm in chronically high blood sugars, and also according to some writers no harm in more or less glycosuria during part of every day. Claims have even been made that high sugar is beneficial in some conditions such as heart disease, because glucose is a food and stimulant for the heart. This seems to be a rather absurd confusion between a high sugar which results from an excess supply of glucose, chiefly by intravenous injection, and a high sugar which results from lack of normal utilization of glucose. It seems incredible that a partial control of diabetes should give any improvement over nature, in other words that the diabetic should thus be better off than the non-diabetic person with heart disease.

THE question whether habitual hyperglycemia and perhaps frequent glycosuria may be harmless is difficult to answer, because unfortunately the writers making these assertions have followed the recent custom of furnishing no proof whatever. Possibly these claims may happen to be right, and I have no positive proof to the contrary. I have only the impression that it is more prudent and conservative to hold to normal conditions until somebody demonstrates positively that abnormal conditions are completely and permanently safe. I have the suspicion that partial treatment merely turns the more severe case into a mild case. It is well known that patients with mild diabetes can often live for ten, twenty, or thirty years without apparent harm, but

the great majority of them encounter disaster sooner or later, usually in the form of arteriosclerosis and other familiar complications. There is a possibility that the high blood sugar may be directly responsible for some neuritic and other vague symptoms, but it seems to me chiefly significant as an index of an incompletely controlled diabetes. In a few instances I have seen complications such as gangrene begin when there was hyperglycemia without glycosuria, and I have seen them subside merely with the reduction of the blood sugar. I therefore feel safer in maintaining normal physiological standards. Furthermore, I can testify that it is feasible to maintain this ideal easily and comfortably in the vast majority of cases, including the elderly and those with heart disease. This was not particularly difficult with proper quantity and especially proper timing of dosage with the old insulin, and the ease and convenience are in general increased by the new forms of protamine and crystalline insulin. The crucial question then is whether these improved forms of insulin shall serve for a more careless and negligent management of diabetes, or whether they shall be an aid toward maintaining higher standards of control.

Beginning with the original Danish work, the protamine insulin has been used in various ways, alone and alternated or supplemented with the old insulin. My own tendency has been more and more to use it alone, also generally in only one dose for the 24 hours.

IN THE great majority of cases of not too severe character it is feasible thus to control the sugar smoothly and efficiently throughout the 24 hours. The special difficulties in the form of severe reactions occurring at unexpected times and with little or no warning are already familiar. In order to use adequate dosage, therefore, it may be necessary to give extra nourishments of carbohydrate regularly at the times when hypoglycemia is anticipated. Here again the use of protamine insulin draws a line between the different ideals and diet methods. Campbell was apparently the first to publish the observation that high carbohydrate diet is antagonistic to the smooth regulation of sugar by protamine insulin. The protamine insulin provides regularly

for a certain base-line of carbohydrate utilization, but the extra flood of glucose coming from each carbohydrate meal creates marked hyperglycemia and glycosuria which can only be controlled by special measures. The lower the carbohydrate ration (possibly between 80 and 150 gm. per day) the more easy and uniform is the control of the sugar with a single dose of protamine insulin. Therefore the choice must be made whether to restrict the carbohydrate thus within moderate limits, or on the other hand to allow high carbohydrate and either go to the trouble of extra doses of the old insulin or else ignore the fluctuations of sugar altogether.

THAT HAS not yet been proved that cholesterol or any other fat derivatives are a basic cause of arteriosclerosis. The experience of Newburgh and his followers may be taken as evidence that no noticeable increase of arteriosclerotic complications occurs with low carbohydrate high fat diets, provided the diabetes is kept under control. Though there is no disproof of the claim that high carbohydrate low fat diets may afford safety from arteriosclerotic and other complications, regardless of high sugar in blood and urine, yet unfortunately there is the usual absence of proof to demonstrate such a claim. It therefore seems most conservative for the present to maintain normal control of the sugar, and in favor of this plan is the fact that it is certainly harmless and that it need not be seriously inconvenient. I can testify that I have never seen a single diabetic complication develop in any patient under this treatment. In particular, I have never had a patient develop gangrene, and when one leg had previously been lost by gangrene, the only patients who have had gangrene in the second leg have been those who departed grossly from the treatment.

The original hope that protamine insulin would facilitate control of the sugar in the most severe and labile diabetic cases has not been fulfilled. In a considerable proportion of such cases it is not feasible to use the protamine insulin at all. In such cases the crystalline insulin, as introduced by Sahyun and manufactured by the Stearns Company, has

—Concluded on page 632

ADVANTAGES AND DISADVANTAGES OF *Protamine Zinc Insulin*

WILLIAM S. COLLENS, M.D.

Brooklyn, N. Y.

T is rather a curious and striking phenomenon that in spite of the

enormous amount of investigation to which insulin has been subjected since its discovery, little attention has been paid to a study of the duration of its action. Although the importance of the duration of the insulin effect in relation to the dose is obvious from a clinical standpoint, attention to this pharmacological phase of the drug has apparently been overlooked as a result of the concept created by the accepted standardization of the unit. If we recall the standard unit of insulin, defined by the Public Health Committee of the League of Nations, as being "1/3 the amount of insulin required to lower the blood sugar of a 2 kg. rabbit, which has fasted for 24 hours, from the normal level (118 mg. per cent) to 45 mg. per cent—over a period of 5 hours", what information does that give us as clinicians regarding the duration of its action when 5 units of insulin are given to a diabetic patient, or 25 units? Or what do we know today regarding the duration of the action of 5 units of insulin in two diabetics of different degrees of severity?

I have been able to uncover very few references in the literature to answer this question. Scott and Dotti (1) showed that there is a logarithmic ratio between the dose of insulin and the fall in blood sugar of normal rabbits when the dose is varied between 1/16 and 1/2 unit per Kg. of body weight. In 1928, while working in the physiological laboratory of the University of Rochester, I gave

From the Department of Metabolism of the Israel Zion Hospital, Brooklyn, N. Y.

Read before the Brooklyn Society of Internal Medicine April 2, 1937.

normal fasting dogs insulin intravenously in amounts varying

between 0.1 u/Kg. and 2.0 u/Kg., and found what would logically be expected, that the larger the dose, the longer the duration of the hypoglycemic state. I wish to recall at this point an experience with a young woman who was so severe a diabetic that it was necessary to maintain her with 50 unit doses b.i.d. One evening, because of her failure to ingest her postcibal feeding, she experienced a very severe hypoglycemic reaction. A neighborhood physician was called in the emergency and, when told that she was a diabetic, suspected the possibility of impending coma and administered an additional 50 units of insulin. This patient had thus received, in a period of three hours, 100 units of insulin. She remained hypoglycemic for the next 16 hours, and it was necessary to give readily absorbable carbohydrate every hour in order to protect her against the recurrence of the symptoms of an insulin reaction.

HIMSWORTH recently made an interesting and important contribution to this subject when he noted that a standard dose of insulin given to healthy normal men was distinctly influenced by the character of the diet (2). He found that insulin action was much more effective and more profound in individuals who had been maintained on a high carbohydrate diet than on a low carbohydrate diet. He felt that they were made insulin sensitive. He was able to observe this difference in action in diabetics and classified them into two groups: "insulin-sensitive" and "insulin-resistant." We have all observed this in clinical practice in the treatment of the

diabetic and have been able roughly to classify them into diabetics with varying degrees of severity, depending upon their daily insulin requirements.

THE usual method of approach in establishing the daily dose of insulin for a patient is ordinarily based on trial. Although the determination of the initial dose depends upon the use of such criteria as the amount of glucose in the urine, or the height of the blood sugar, or the presence or absence of ketone bodies, or the patient's symptoms, or the degree of wasting or dehydration, or the presence of complications such as infection or vascular accidents, it is also influenced by the physician's clinical concept of the severity of the diabetic state, to be altered only upon subsequent follow-up observations. It is a common experience that when the daily requirement of insulin is over 25 units, it is divided into two doses and that when it is over 50 units, it is divided into 3 doses. Some observers even add a fourth dose at midnight in diabetics so severe that unless given, the morning fasting blood sugar rises to inordinate heights. That, however, is a highly variable phenomenon. I have total diabetics under observation who take as much as 100 units a day in two divided doses.

The necessity for giving more than one dose a day stimulated many investigators to find a preparation which would have a longer duration of action than ordinary commercial insulin. Thus has come to the foreground the study of the duration of the insulin effect.

ATTEMPTS at the retardation of the insulin effect were first made by Leyton (3). He suspended solutions of insulin and dry insulin powder in oil and oil emulsions. It was found that there was no difference in its action. The insulin was rapidly taken up by the blood serum.

The problem then consisted of preparing a precipitated compound of insulin which was sparingly soluble in the body. Gray prepared an insulin tannate which had the property of acting longer than ordinary insulin (4). Klein and Grosse prepared insulin-Durant, which consisted of insulin added to a viscous mixture of several lipoids, and met with

a measure of success (5). Jacobs and Ricketts of Chicago have succeeded in obtaining a prolonged and retarded insulin action by precipitating insulin with safranin (6). Rosenthal and Kamlet have recently produced a similar effect by precipitating insulin out of solution with alum (7).

The most successful compound thus far prepared is the precipitated insulin protamine with $ZnCl_2$ added to it in a concentration of .008 per cent equivalent to 0.2 mgm./100 units (8). Hagedorn selected the monoprotamine from the sperm of *Salmo irideus* for precipitating insulin, because this precipitate has the lowest solubility of all the protamines (9).

There is no doubt but that insulin protamine produces a longer insulin action than the same dose of ordinary insulin—as a result of the slow liberation of the insulin molecule from a poorly soluble compound.

THE rôle of zinc in insulin action commands serious attention. Scott showed in 1934 that crystalline insulin prepared from pyridine-brucine or saponin precipitates contained zinc (10). He also showed that the addition of small quantities of other metals such as cadmium, nickel or cobalt facilitated the crystallization of insulin.

Scott and Fisher (11) pointed out that they were unable to crystallize insulin, when insulin was first freed from the heavy metals by electrodialysis and felt that zinc was normally identified with the insulin molecule in a stoichiometric relation. They also found appreciable quantities of zinc present in the normal pancreas. There is normally present as much as 20 mgms. of zinc per Kg. of fresh bovine pancreas. They have also made the important observation that zinc added to insulin prolongs its activity. This has been confirmed by Wilder, who added $ZnCl_2$ 2.3 mg./cc. of insulin solution (12).

There appears to be no apparent harm in this added zinc salt. Observations made in workers exposed for years to zinc fumes do not seem to show that they suffer from occupational hazards. Rabenowich has added zinc to the diet of rats through three generations without producing any deleterious effect (13).

Sahyun made a preparation of crystalline insulin with which he was able to produce a longer insulin action than with ordinary commercial insulin and claimed that it was not due to the contained zinc. He maintained that on recrystallization, his preparation contained as little as 0.2 mg. of zinc per 1000 units of insulin (14). Others who have analyzed Sahyun's preparation revealed a zinc content as great as 2.3 mgm./1000 units. What is important from all this work to us as clinicians is that zinc added to ordinary insulin, crystalline insulin or insulin protamine has the property of prolonging the action of each of these more than if zinc were not added (15). Certainly the insulin protamine with zinc added, the preparation now available on the market, is the one which has the longest insulin action of all. It may be made to produce an insulin effect for as long as 48 hours if the dose is sufficiently large.

IT is obvious from all the above discussion that there exist decided advantages in the use of a preparation with these properties. The first advantage lies in the fact that it makes it possible to administer the insulin at intervals of once in 24 hours. An appreciation of our complex mode of modern living, with the patient working away from home, eating lunch almost regularly and dinner quite frequently in restaurants, with after-dinner recreational activities sought outside of the home, must make one realize that about the only regularity one has in his home is his bed and his breakfast. Anyone who has treated diabetics who require more than one dose of insulin a day has been impressed with the slavery that these patients will frequently complain of, in their being compelled to circumvent social activities because of the necessity of taking insulin before lunch or dinner. The patient who must of necessity "eat out" must then seek the seclusion of a hotel room or a wash room in a restaurant in order to go through the secret rites of taking his "dose" of insulin. How often have we heard the patient ask: "Doctor, what shall I do about my insulin, I am going to take dinner at a friend's home or going to a banquet?" These are serious problems to the indi-

vidual who is compelled by virtue of his disability to look forward to a lifetime of this type of strict regimen. To these individuals the introduction of protamine zinc insulin has proven a godsend. It makes it possible for them to take their dose in the morning, be through for the day, and not to have to worry about another dose until the following morning. It makes their lives more livable, gives them greater freedom of activities and burdens them with no greater hardship than scrubbing their teeth in the morning as part of their daily toilet.

HERE appear to be other advantages: The patients taking protamine zinc insulin experience a greater sense of well-being, gain weight with greater ease, do not complain as much of the morning dryness and in the total diabetics have a lesser tendency to excrete acetone bodies. It is strongly possible that the reason for this is that they are practically never without an insulin effect.

Some observers, in an enthusiastic effort to produce an even distribution of insulin action over the 24-hour cycle, have recommended the division of the protamine insulin into two doses given at intervals of twelve hours. Others, in order to combat the postprandial excretion of sugar, have even resorted to the administration of a dose of regular insulin twice a day along with the protamine insulin. It seems to me that the advantage of the protamine preparation is completely vitiated if more than one dose a day is resorted to. Most men, however, have come to a final realization that it is possible to control the severest diabetic with the morning administration of protamine insulin before breakfast.

NOW in the face of these far-reaching advantages, certain problems arise in the use of protamine zinc insulin which present decided disadvantages.

Hypoglycemia—The earliest reports on the use of protamine insulin indicated that hypoglycemic attacks were decidedly diminished in frequency and that, when they did occur, were much milder in character. Wilder, on the other hand,

states that the subject of reactions is unduly minimized in many of the reports. In a recent article discussing reactions, he says: "I am informed of one death following the use of protamine insulin, and I fear that others will follow unless great pains are taken to impress patients with the importance of heeding early symptoms and combating them with carbohydrate. Muscular exertion is particularly likely to provide reactions in a patient maintained with protamine insulin. This adds to the difficulty of treatment." He goes on to say: "It is well to tell the patient always to carry small cubes of loaf sugar with him and to take one at the first suggestion of any unusual symptoms, and another every 20 or 30 minutes until the next meal if symptoms persist or recur" (11).

In my own early experience with protamine insulin, I was impressed with the remarkable ability to control severe diabetic states with the one-dose method of administration in the morning before breakfast. One of the greatest difficulties with which I was confronted, however, was the frequency of insulin reactions. The incidence of reaction was more frequent than with the old insulin. The time of reaction was almost uniformly in the early morning hours, between 5 and 8 A. M. Any attempt to reduce the dose, in order to eliminate the reaction, resulted in the excretion of large amounts of sugar in the postprandial state. It is my own impression that the patient is in a greater dilemma trying to remain aglycosuric for the greater part of the 24-hour cycle and at the same time escape the hypoglycemic state than he was formerly. In order to manage himself successfully with protamine insulin the patient finds it necessary to pay closer attention to his diabetic status. He must examine his urine every morning, frequently also evenings, and he must be subjected to more frequent blood sugar estimations. The problem for the physician is no longer to worry as to how high the blood sugar is in the morning but how low it is. I have seen these patients report with fractional specimens of urine, discover up to 3 per cent in postprandial states, find the urine free of sugar in the morning and be startled by finding the fasting blood sugar as low as 40 mgms. per cent, and no symptoms. Physical ex-

amination at the same time would not show the faintest clinical evidence of a hypoglycemic reaction. This is not an uncommon experience with many observers. The reason for these reactions is that it is almost impossible to predict or anticipate the duration of the protamine insulin effect with the same degree of accuracy as with the old insulin.

WHICH brings me to the question of the clinical picture and significance of the hypoglycemic state. It has already been frequently reported that the hypoglycemic state when created by protamine insulin is vastly different from the picture produced by the old insulin. As I have stated, the first very important fact is that the hypoglycemic state can be present without any symptoms. When the symptoms do develop, they are usually characterized by manifestations associated with functional disorders of the central nervous system, such as drowsiness, headache, listlessness, diplopia, aphasia, fatigue, nausea, paresthesias, and marked emotional crises such as crying spells, shrieking, transitory depressions, and coma. The well known shock symptoms of trembling, pallor, sweats, and hunger which follow ordinary insulin are very rare.

Under these circumstances, then, we have a patient who is exposed to a syndrome of which he may or may not be aware, and which occurs especially during his sleep. Wilder has described patients who have awakened in the morning with sore, stiffened muscles and a bitten tongue. These symptoms are very suspicious of convulsive seizures. He described his experience with a young adult diabetic to whom he administered 70 units of protamine insulin and withheld food for purposes of studying the duration of the insulin effect. He found that the blood sugar remained in the neighborhood of 50 mgm. for the last 40 of the 57 hours of the experiment and without any symptoms until the end of the experiment, when headache and mental confusion developed. The administration of glucose did not relieve the symptoms for several hours. Bollman gave sufficient protamine insulin to dogs to produce long continued hypoglycemia. In those that died with fatal convulsions, he found multiple petechial hemorrhages scat-

tered throughout the brain. Some dogs died even after the administration of glucose.

HERE are other phases of the hypoglycemic state that must at this time be mentioned. The elderly diabetic is notoriously more susceptible to vascular degenerative lesions than the non-diabetic (16). A large literature has grown up to show that the hypoglycemic attack is attended by the decided danger of precipitating vascular spasms and thromboses in vessels that have undergone sclerotic degeneration (17). Many of these authors have warned against the use of insulin in the elderly diabetic and have based their statements upon definitely observed toxic phenomena produced by the administration of this hormone (18). Various types of disturbances in cardiac function have been demonstrated during the state of insulin hypoglycemia such as: paroxysmal fibrillation, angina pectoris and electrocardiographic changes among which are notching of the P wave, prolongation of the P-R interval, slurring of the Q.R.S. complex, changes in the character of the ST segment and pathological deflections of the T wave.

In discussing the relationship of poisons to therapeutic agents, Abel presented the following interesting concept: "The harmful effects of a large dose of a drug or poison do not fall off *pari passu* with the diminution in dose. On the contrary, with the diminishing dose, there may occur a turn about in the action of the drug with the appearance of a highly beneficial action, one indeed that is indispensable for the continuance and maintenance of health, as is the case when we pass from the toxic dose of a hormone to its therapeutic dose" (19).

It appears to me that insulin is an excellent example of such a substance, indispensable to life and circulating in our blood below a toxic level, which, when increased to the point of acting as a poison, results in a profound degree of intoxication, violent enough to produce death. In a paper about a year ago we made a plea for the use of insulin in the elderly diabetic with coronary disease, for we found that with the discreet use of the drug as a therapeutic agent

and by protecting the patient against the possibility of hypoglycemic attacks with adequate postcibal feedings and small doses of insulin, that the clinical picture of angina pectoris was commonly relieved (20).

I feel that the introduction of the insulin molecule in a precipitated form has given us a drug whose therapeutic effect too closely borders on the phase of its toxic effects. And since its toxic state cannot be as easily recognized or controlled, that it might be indiscreet to employ it in a patient who presents clinical evidence of vascular degenerative disease, especially of the coronary or cerebral arteries. If, however, the physician should decide to employ protamine insulin in the elderly diabetic, it seems well that he proceed with caution and administer it in doses small enough to avoid the onset of the hypoglycemic state.

HERE is one more disadvantage that I should like to discuss and that is in connection with infections in the diabetic. It is a well-known fact that an acute infection of any kind in a diabetic promptly breaks the carbohydrate tolerance. It has been demonstrated that circulating toxins have a profound inactivating influence on insulin action. The severe diabetic who is controlled with protamine insulin and suddenly develops, for example, a respiratory infection, experiences a break in tolerance of an order sufficient to require an increase of protamine insulin to alarming proportions. I have found it judicious in these cases to keep the protamine insulin at the same level or at slightly increased doses and simply give additional unmodified insulin in divided doses, depending upon the degree of glycosuria.

IT is a common experience that a diabetic who has recently developed his disease and comes under care will show a marked and progressive increase in carbohydrate tolerance and in about four to six weeks finally show a level of tolerance which will subsequently remain stable and fairly constant. I can see no advantage in starting these patients with protamine insulin at the outset but prefer to change from regular insulin to

protamine after their tolerance has been fairly stabilized. It appears to me to be less difficult.

THE advantages of the use of protamine zinc insulin would thus appear to be: 1) the opportunity to maintain the diabetic with one dose in 24 hours. 2) A greater sense of well-being. 3) Elimination of morning dryness. 4) Reduction in the incidence of ketosis.

The disadvantages can be summarized as follows: 1) Susceptibility to long periods of hypoglycemia and its evident dangers. 2) Necessity for closer attention to diabetic management. 3) Daily urine examination. 4) The necessity for frequent blood sugar estimations. 5) Inadequate control during periods of infection. 6) Danger of coronary attacks.

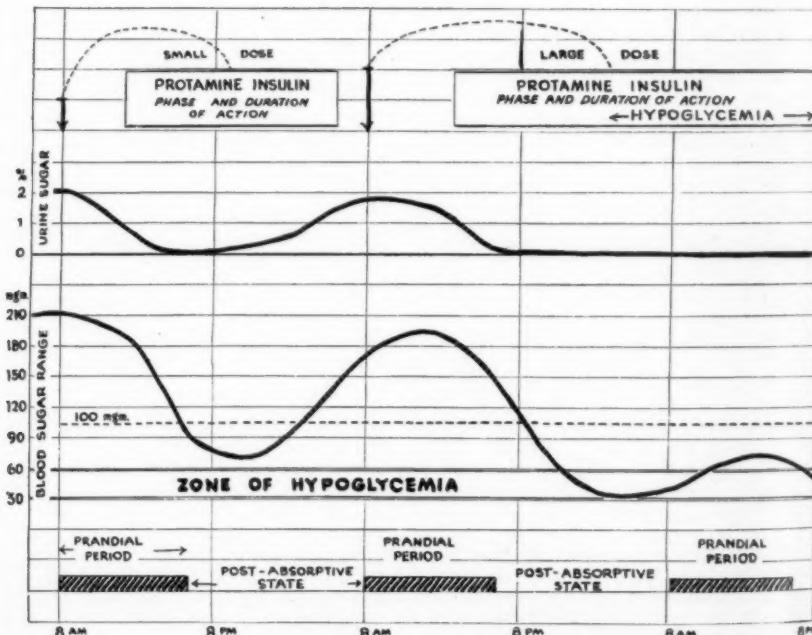
The indication for the use of protamine zinc insulin would seem to be, then, in the juvenile or younger adult diabetic whose tolerance is so low that he requires more than one dose of insulin a day for adequate maintenance. The

contraindications to its use may be listed as: 1) The elderly diabetic who shows evidence of arterial sclerosis, especially of the coronary and cerebral vessels. 2) The diabetic with an infection. 3) The new diabetic at the onset of treatment. 4) The unintelligent patient.

Ideal Method for Using Protamine Zinc Insulin

SHOULD like at this time to present a diagrammatic scheme which would aid in utilizing this important drug as a therapeutic agent and avoid the possibility of eliciting its toxic character. Figure 1 is a graphic representation of the duration of action of protamine insulin. It has already been demonstrated that since protamine insulin is a highly insoluble compound, it takes six to eight hours after injection to begin to show its insulin effect, and that because of the slow release of the insulin molecule, the duration of its effect is longer than with the unmodified insulin. In these circumstances, the insulin effect does not mani-

Fig. 1



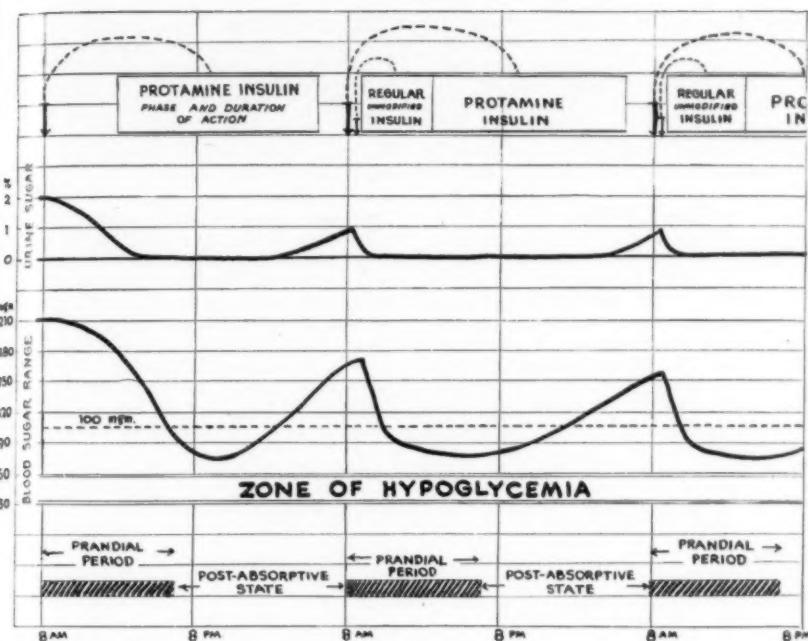


Fig. 2

test itself during the prandial state, but when given in large doses, large enough to be effective for 36 hours, controls the prandial state of the second day. In other words, protamine insulin, when given in the morning before breakfast, does not provide for carbohydrate utilization of the same day, but of the following day. Now, in order favorably to control the prandial state of the following day, it is necessary to give a dose of protamine insulin so large as to make the patient susceptible to hypoglycemic attacks in the early morning hours. In order to prevent these attacks, I have found it wiser to reduce the amount of protamine insulin to a quantity that would not be capable of acting during the prandial state of the following day, but instead use unmodified insulin for the prandial period, both doses being given at the same time before breakfast. In these circumstances, then, the unmodified insulin, because of its rapid and precipitate action, is capable of controlling the

prandial state and the protamine insulin can then be safely reduced to doses which will avoid the early morning hypoglycemia of the following day (see Figure 2). I have found that the maximum dose of protamine insulin that can be used alone to control the diabetic state is 30 units and, when more is necessary, that small increments of unmodified insulin should be given in doses as little as 5 units. I have also observed that the maximum dose of protamine insulin in the severest diabetic need not be greater than 60 units and that the use of the unmodified insulin up to 30 or 40 units to take care of the prandial state then becomes adequate. These doses are used in conjunction with diets of the higher carbohydrate types where as much as 300 grams of available glucose is incorporated in the diet. The purpose, then, of using this technique, is to create a condition where the patient approaches the early morning hours in the recovery phase of the insulin effect. Since the in-

introduction of this technique I have found the incidence of hypoglycemia and low fasting blood sugars a rarity. Insulin is like a wild dog: the unmodified type being held on a short leash equivalent to "6 hours long" as compared with protamine insulin being held on a long leash equivalent to "24 to 36 hours long." It is very obvious that the one on the short leash is easier to control.

Outlook

It appears to me that the final chapter in the improvement of insulin therapy has not yet been written. It is possible that there exist irregularities in the liberation of the insulin from the precipitated molecule due to at present unknown

factors controlling the solubility of the precipitate. Protamine belongs to the class of simple proteins and is foreign to the organism. Although to date there appears to be no deleterious effect from its continuous daily injection, yet it gives me the feeling that it is not quite the right thing to use.

I feel that a step in the right direction has been made. Longer acting insulin which can be better controlled to avoid toxic effects, and which can be made to be effective sooner than the precipitated preparation, thus obviating the necessity of giving the additional dose of regular insulin, will be a decided improvement. It seems to me that this improvement will come in a soluble insulin free from contaminating foreign proteins.

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123 EIGHTH AVENUE.



ALLANTOIN IN OSTEOMYELITIS

1. When allantoin is used as a 0.4 per cent solution, the drainage is copious, thin, yellow without odor.
2. The drainage resembles that which occurs when maggots are used.
3. The edges of the healing wound are

similar to that occurring with maggot therapy.

4. A quicker, natural debridement seems to occur when allantoin is applied as an unguentum into the cavity.

—A. R. COMUNALE, M. D.
in *J. Med. Soc. New Jersey*,
Oct., '37.

MENTAL HYGIENE NOTES

THE parents of this patient complained, in the main, of impulsive outbursts of obscene language accompanied by peculiar jerking of the head and extremities.

Until five years ago this boy was free of such dramatic behavior although he was always nervous; for example, blinked his eyes for several years. It was also noticed that he did not stand excitement well. The parents admitted that he was a spoiled child.

The present characteristic generalized convulsive tic is thought by the parents to have been precipitated by a whipping administered five years ago by a colored nurse. Since that time he has had daily attacks of this type of tic reaction until at the present time a tic occurs every few minutes.

Patient is the oldest of two children, there being a brother aged 14, normal. He learned to walk and talk at the usual time. However, feeding difficulty appeared after three months at the breast. He seemed to lose appetite. There was also a lowering of vitality expressed in a lack of participation in games requiring large muscle activity. Prior to the age of five he was considered definitely "spoiled"—would not do as he was told. In school he was soon observed to be retarded in the learning process. Following kindergarten and a year in the public school he was placed in a private school where he remained five years. Owing to difficulty in management, he was transferred to a military academy where he remained three years. He became such a problem in this last institu-

tion that his parents provided private tutoring at his home. Here he has remained for the past two years but without improvement academically or behavioristically. His chief enjoyment is in playing baseball and riding a bicycle.

Family history

is negative for nervous and mental disorders. His father at the time of examination was noted to be quite psychiatrically unintelligent and impatient about his son's condition. When I approached the patient to examine him, the father said to the son, "Go and see the doctor. He wants to saw off your leg."

The patient was obviously tense and somewhat fearful.

Physical examination revealed a somewhat pale, stooped, but fairly well-nourished youth, rather childish, and of asthenic habitus. He fidgeted and cast many furtive glances to see if he was being closely observed. Head circumference 51 centimeters; height 65 inches; weight 119½ pounds. No gross physical defects.

Neurological examination negative with the exception of increased tendon reflexes. Laboratory findings negative.

Mental examination showed as the outstanding characteristic the compulsive generalized tic phenomenon accompanied by obscene outbursts which were easily audible for a considerable distance. The tic at times would be initiated with a

striking of his forehead with his hand, irregular jerking of the arms, legs, and head coincident with such blurt as "F..k yourself". As the examination proceeded, the tic behavior abated so that he was able to converse in a relevant and characteristic fashion. There was no mood disturbance. He was anxious to show off to advantage in drawing. "I can draw a Ford" (Patient drew an enviable reproduction). There was also some interest in others: "What kind of a car have you?" A Binet-Simon examination revealed a mental age of ten years; I. Q., 63.

The diagnostic formulation may be summarized as a generalized convulsive tic, also known as Gilles de la Tourette's disease, occurring in a mentally retarded youth of 19. The interpretation of this phenomenon is probably on the basis of an attention-getting device as well as a body-protest to improper handling in connection with ego and personality needs. Because of his inadequately understood mental retardation, he was pushed along in school with the result that he experienced excessive failure in academic performance. He became an unhappy child and his difficulty in management increased. Whipping merely served to precipitate a more violent form of personality protest to unfortunate treatment. In view of the fact that he learned to walk and talk at the usual age, his mental retardation is probably on the basis of encephalitis suffered in childhood, although there is no history of hyperthermia or acute exanthemata.

This reaction type of somatic and psychomotor phenomena characterized by abrupt generalized movements accompanied by grimaces and explosive noises

or obscene language usually appears between the ages of 10 and 15.

The treatment of this condition is one of reconditioning through intelligent educational handling. Our first objective is to place him in an understanding atmosphere where he will experience recognition, appreciation, or praise for performance which is on his own and only level of ability to succeed. At his age, academic subjects such as reading, writing, arithmetic, and social studies should be placed in a secondary and incidental position. Our primary aim is to promote effective socialization. To this end, the annoying behavior of the tic should be rigidly ignored. It is interesting to note that when the examiner was objective in his attitude toward his dramatic episodes, these latter tended to disappear. When this youth gains adequate satisfaction in more socially approved ways, his present asocial conduct will gradually disappear. An adequately staffed private school specializing in the education of atypical children could do much for a patient of this type. Because of parental ignorance and a long period of maladjustment in the home situation, he should be taken out of this highly emotional atmosphere.

It is important that the expectancy pattern of the parents should be pointed to the fact that this patient will always require more or less guidance and supervision in view of the mental deficiency factor. Nevertheless, adequate training could prepare him for effective communal living provided good habit training in simple, unskilled labor outlets is realized.

214 STATE STREET.



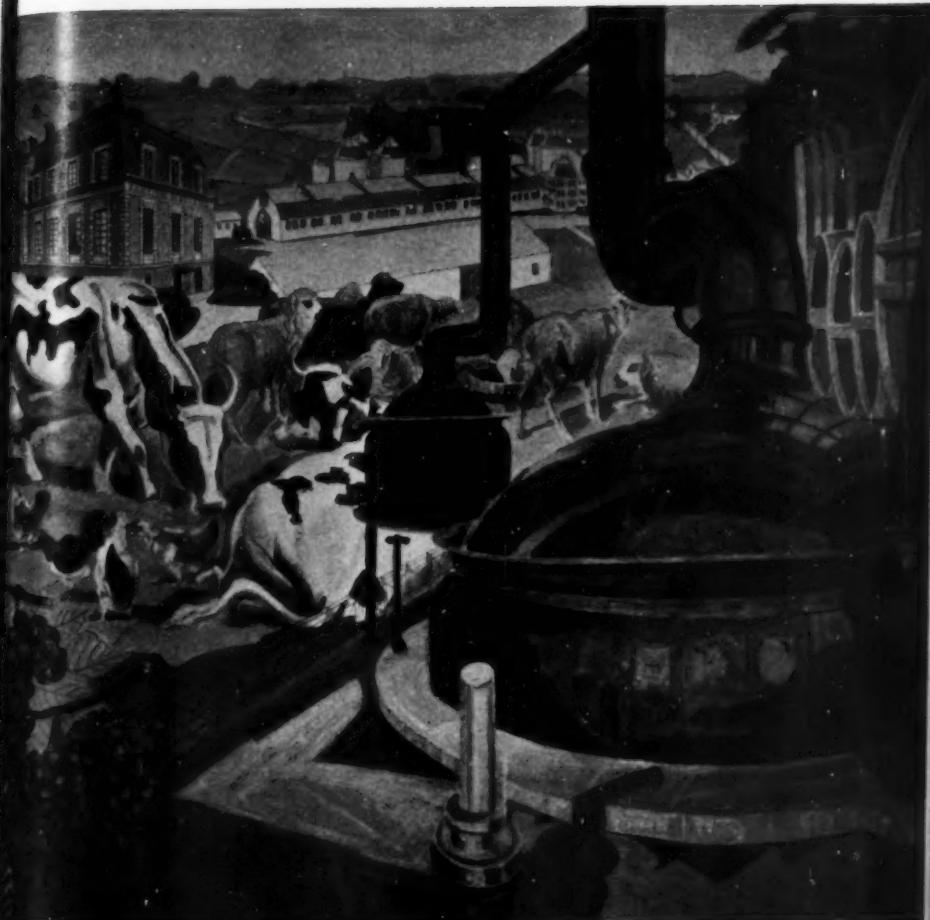
COMMUNITY EDUCATION ON SYPHILIS

First: Tell all the people.
Second: Find and examine those infected.
Third: Get money and facilities to

treat them.

Fourth: Persuade all concerned to co-operate in year 'round activities to put the program across.

WILLIAM F. SNOW, M. D.,
in *J. Social Hygiene*, Oct., '37.



SECTION of a WPA mural "Louis Pasteur" showing the Pasteur Institute in France. The panel is one of a series entitled "Men of Medicine" executed by Arthur Faber under the direction of the WPA Federal Art Project for the Willard Parker Hospital, Manhattan.

Cultural Medicine

SOME OF THE GREAT MEDICAL LIBRARIES OF THE UNITED STATES



III. The Library of the College of Physicians of Philadelphia

THE first recorded meeting of the College of Physicians of Philadelphia was held on January 2nd, 1787. In December of 1788 the College received its first recorded donation of books, "to be added to the College Library." The library becomes, thereby, the oldest extant medical society library in the United States. At the end of nearly a century and a half it is also regarded, and this is more to the point, as one of the country's notable repositories of medical literature, both ancient and modern.

The College of Physicians library did not enter upon its fullest period of development until the second half of the

last century, during the years in which the Army Medical Library, not many miles distant, was forging rapidly ahead under the inspired direction of the great John Shaw Billings. Lacking a Billings, as well as the financial resources which he commanded, the library nevertheless found a self-perpetuating corps of distinguished physicians among the fellows of the College who, themselves giving generously, gently bullied others into doing likewise. Among the leaders there is room here to name only Doctors Thomas F. Betton, Samuel Lewis, George B. Wood, William Osler, S. Weir Mitchell, W. W. Keen, and Louis A. Duhring. At their right hand for nearly half a century stood Charles Perry Fisher

From the Editorial Research Department of the
MEDICAL TIMES.



The Ashurst Room

(happily, still living), a pioneer among professional medical librarians in the United States and one whose influence in the medical library field was far-reaching and important.

The library today numbers some 150,000 bound volumes housed mainly in seven fire-proof tiers of stacks. The collection of scientific incunabula is noted both for its extent and its quality. More than one-half of these latter volumes have been photostated by the library, the photostatic reproductions being readily available to research students, who prefer them, for obvious reasons, to the originals, as working copies. The library, furthermore, furnishes photostatic copies of the individual works to other libraries at cost price. Other, smaller, specialized collections can be suggested here by reference to a fine Harvey collection and to one of the famous Salernitan "Regimen of Health."

The list of approximately 1,100 scientific periodicals currently received at the College library contains no hint, naturally, of hundreds of files of often very rare medical periodicals of earlier days. The historian is aided also by separate indexes listing some 33,000 portraits and

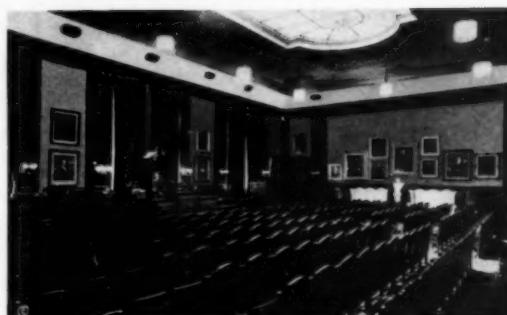
hundreds of autographs and manuscripts of men and women connected with medicine. Interlibrary loans in the past year to libraries in seven States of the Union are witness to the more than local use of the library's resources.

A monthly (except for July and August) mimeographed list of new acquisitions is sent to the fellows of the College and to other interested institutions and individuals. Attached to each issue, since the advent of the present librarian, W. B. McDaniel, 2d, in 1933, are several

pages of comment on recent acquisitions of special interest, or reproducing rare material in the library.

—Concluded on following page

The Norris Room



Mitchell Hall

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It is the privilege of the library of the College of Physicians to be able to be, if not all things, then, something to almost any medical inquirer, be he practitioner, historian, or layman. And it may be said that the resources of the library are freely drawn upon by all three.



CORONARY ARTERY THROMBOSIS

A. M. MASTER, SIMON DACK and H. L. JAFFE, New York (*Journal A. M. A.*, Aug. 21, 1937), studied 817 attacks of coronary artery thrombosis occurring in 555 patients. The majority of the patients were in the sixth or seventh decade. They were able to ascertain the circumstances under which the thrombosis occurred in 530 cases. The attacks that began while the patient was lying down or sitting comprised 21.7 per cent of the attacks. The next largest number (19.6 per cent) occurred during sleep.

Although 41.3 per cent of the attacks began while the patient was asleep or resting, the onset was not contingent on these states. The percentage of attacks during mild activity was only 13.6. Under moderate activity (5.3 per cent) were included attacks occurring during actual manual labor as well as while the patient was straining at stool, coughing, running upstairs or shopping. In 18 per cent of the cases the attack began while the patient was walking, in most instances at an ordinary pace but occasionally while he was climbing upstairs or up a hill or walking against the wind. Eleven patients (2.1 per cent) gave a history of an unusual occurrence or severe exertion preceding their attacks. There was only one instance of trauma in the series. Excitement was associated with the onset of the attack in 5.1 per cent of the cases. The number of attacks coincident with meals was 5.3 per cent. Whether or not operation is a factor in the initiation of coronary artery thrombosis is of considerable practical importance. The incidence in the present series was small—4.1 per cent. The incidence of infection was only 1.9 per cent (eleven cases). Thrombosis was engrafted on cardiac failure nine times. Twenty patients were receiving insulin regularly, and in only one case were the authors able to connect the attack with the injection. One third of the men and practically all the women were non-smokers. Therefore, tobacco has no influence on the occurrence of coronary thrombosis. More than half the patients did not drink at all. In fact, it may protect, since only 4 per cent of the patients were heavy drinkers. It is noteworthy that in only one case did occlusion follow a drinking bout. From this study it would seem that the onset of coronary artery thrombosis during the various states considered was merely a temporal coincidence and that no specific factor precipitates an attack. This contrasts with the situation in angina pectoris, which is often confused with coronary thrombosis. While both conditions are probably manifestations of a metabolic disturbance, as Libman stated, and while the local pathologic process is sclerosis of the coronary artery, yet the two conditions, in respect to the exciting cause, differ widely.

CULTURAL MEDICINE II

This is the man of men, the vision spoke.
—Thomas Chatterton.

KING LOUIS XV had not been feeling well. He had become both bored and jittery. Jaded by the life of the Court and on the verge of a "nervous breakdown" after the attempted assassination by Damiens, he had been given a course in occupational therapy by his physician, François Quesnay. This consisted in the making of wooden snuff-boxes for the whole Court with a set of turner's tools which Quesnay provided for him.

But Quesnay had a much deeper design. The King began to feel better. Finding his royal patient much improved, Quesnay set up a press in the King's private apartments at Versailles and, aided by Madame de Pompadour (an intelligent accomplice in Quesnay's scheme for the education of the King in taxation, agriculture and commerce), established a unique curriculum.

The ostensible object was the display of all the resources of printing: italics, capital letters, notes, etc. From this cautious beginning it was only a step to say to the King: "Sire, you have seen when hunting a great deal of lands, farms and laborers. You are going to print an account of how these people produce all your wealth."

"Poor peasant, poor country; poor country, poor King."

It is to the credit of the King that, when he set such hot declarations as the above in cold type, he remarked that "It is a pity the Doctor is not in

the government. He knows more about it than any of them."

But, alas, Quesnay's noble efforts to awaken France to her orgies of waste, and to the errors and abuses that stifled commercial enterprise and ruined the tillers of the soil, were doomed to failure in his day, though his thinking covered a wide range of economic ideas now known to, and to some extent applied by, millions of men, but in his time unique in scope.

Just who and what was this man Quesnay, whose diagnosis of what ailed France—and still ails us today—was so accurate, and whose remedies against human erosion still intrigue men of good will?



FRANÇOIS QUESNAY was born at Méré, near Versailles and Paris, in 1694. His father was an advocate who abandoned his wife and child. Quesnay's early life was that of a peasant's son. This boy who was taught to read by a friendly gardener at the age of twelve became in due time a Master of Arts of the University of Paris, a Master Surgeon, qualified by the Paris College of Surgeons and the Faculty of Medicine in 1718 at the age of twenty-four, and a Doctor of Medicine in 1744 (University of Pont-à-Mousson).

Quesnay's *Observations sur les effets de la saignée* (1730), in which he sounded the death knell of the bleeding craze, led to his selection as Secretary of the Academy of Surgery at Paris, which post he held from 1740 to 1748.

From the Editorial Research Department of the MEDICAL TIMES.

He became the medical attendant of the family of the powerful Duke de Retz, surgeon of the Paris police department in 1736, royal professor of the *materia medica* of surgery in 1738, and Commissioner of War in 1739. He aided La Peyronie, first surgeon to the King, to write his great history of surgery.

This eminent physician always considered medical questions from the point of view of the public good rather than from that of the doctors' interests, showing in this his social vision.

Aside from his distinguished place in medical and economic matters, Quesnay was a mathematician of note.

ABOUT 1748 Quesnay was chosen by Madame de Pompadour to be her medical attendant and he began to live in the palace at Versailles. He was appointed physician to the King, Louis XV, in 1752, after successfully treating the Dauphin for smallpox. He became acquainted with many people of influence and importance, such as Diderot, D'Alembert, Helvétius, Buffon, Marmonet, the elder Mirabeau, and Condillac.

His position at the Court gave him leisure for philosophical and economic study and he was ennobled and given an estate by the King.

In 1753 Quesnay wrote his last notable contribution to medical literature—*Traité des fièvres continuées*.

His *Traité de la gangrene* also held an important place in his time and he was honored by a Fellowship in the Royal Society of London.

Quesnay now began to contribute to the Encyclopédie of Diderot and D'Alembert articles on farming, husbandry, taxation and interest. These articles constituted the bases of his system (*Fermière*, 1756; and *Grains*, 1757). Other important writings were *Maximes générales du gouvernement économique d'un royaume agricole* (1763), *Droit naturel* (1768), and, of course, the famous *Tableau économique* (1753 - 1758).

His works have been collected under the title of *Oeuvres économiques et philosophiques*.

FRANÇOIS QUESNAY died in 1774. He and his school influenced such individuals as Malthus, Paley, Pitt, Peel,

Courtesy of the Surgeon-General's Library



Benjamin Franklin, Gladstone, John Stuart Mill, Dugald Stewart, Spencer, Proudhon and Henry George. George dedicated his *Protection and Free Trade* to the memory of Quesnay and his friends "who in the light of despotism have foreseen the splendors of the new era." Governments influenced were those of Louis XVI, Charles Frederick (Margrave of Baden), Gustavus III of Sweden, Leopold II (Grand Duke of Tuscany and afterward German Emperor), Stanislaus Augustus of Poland, the Emperor Joseph II, and Charles III of Spain. The impression upon political economy has been deep and lasting, even unto our day.

The Physiocracy of Quesnay is defined by Professor Haney of New York University as a system of thought based upon a belief in the existence of natural laws which must be followed if men are to gain their highest well-being.

Quesnay and his Physiocrats laid great stress on agriculture (and mining), which they thought the sole means of increasing the wealth of a nation, nature by her bounty creating a surplus. This was a vital point in the system. Only that industry was considered productive that increased the wealth of the nation by making more things than were consumed in the process.

"Their object was to ascertain the natural laws whose observance would restore all France to opulence" (Haney).

THE Physiocrats emphasized individualism and freedom. Private property is the expression of individuality and the individual must be free to dispose of it. "A man's private business is no proper concern of the government." But it is to the self-interest of men to cooperate with their fellows. The particular interest of the individual is always that of the whole community. This seemed to them proved by the benefits arising wherever industry and commerce were free. So self-interest, while it impels one to multiply the thing one sells, increases the happiness of all provided trade is free. The abatement of poverty grows out of the application of these principles.

Laissez faire was a favorite maxim of the school. The only function of government is to protect life, liberty and prop-

erty. "Since liberty and property spring from the very nature of man and are necessary to his individualism, human laws should merely recognize, formulate, and maintain them" (Haney).

Theirs was a social point of view. They saw how interdependent people really were and "centered attention on producing and circulating the necessities of life" (Haney).

Summarizing Quesnay and his school, we may say that the Physiocrats improved agriculture and increased the importance of the oppressed peasants; they freed trade, especially in breadstuffs, from one of its handicaps; they influenced the Constitutional Assembly in the early days of the French Revolution; they gained much ground through the power of Turgot, Finance Minister of Louis XVI; since they believed that agriculture was the only form of production yielding a value in excess of the cost of production, they advocated that taxes should be levied upon rent as a measure of such surplus or net profit, "so as to avoid the expense and friction attendant upon the shifting of the tax to this source when placed originally upon other objects"—thus we have the theories of surplus value of the economists and the single tax (*impôt unique*); so they believed land revenues to be the only proper source for taxes, to be paid by the landlords, in place of the myriad of disproportionate taxes under which the people sweated and starved; the State should perform only those functions which cannot be adequately carried out by individuals and those that primarily redound to the public good; a limitation on interest was advocated, to protect the State against usury and prevent the diversion of capital from agricultural use to Paris; finally, fortunes were discouraged when acquired by interest, sinecures, and special privileges, instead of by productive enterprise.



CAPTIOUS—or uninformed—critics who have rebuked the medical profession for its interest in and forthright and able grappling with economic problems possessing medical aspects, sometimes much to the discomfiture of up-lifters and "socialicians," forget—or are

unaware of—that the founder of economics as a modern science was François Quesnay.

Two medical predecessors of Quesnay had dealt to some extent with taxation and finance—Sir William Petty, professor of anatomy at Oxford, whose *Political Arithmetic* was published after his death in 1691, and John Locke, English philosopher and author of the *Essay Concerning the Human Understanding*, who was a Commissioner of the Board of Trade and adviser of the first Lord Shaftesbury. Both Petty and Locke were physicians. But it is Quesnay to whom, "if to any one man, rightfully belongs, in spite of errors, the title of founder of Economic Science" (William Ballantyne Hodgson). He and his school [the Physiocrats, or *Les Économistes*, or the Agricultural System (Adam Smith)], of which he was the acknowledged master, says Haney, were "the first scientific economists." Higgs also characterizes them as "the first scientific school of political economy."

ADAM SMITH intended to dedicate *A his Wealth of Nations* to Quesnay, but the latter died about two years before the appearance of that great work. Smith spent the years from 1764 to 1766 in France and was there influenced by Quesnay, much the older man of the two. "Their system" (that of the Physiocrats), says Smith, "with all its imperfections, is perhaps the nearest approximation to the truth that has yet been published upon the subject of political economy." Smith differed on many points from Quesnay, and the teachings of both were later modified greatly by the Industrial Revolution. It is true to say that the good elements of the Physiocratic system were incorporated by Smith into the structure of his own. Smith opposed monopoly and all special privilege as injustice to the poor, in whose interest he advocated the system of *laissez faire*; through such liberty the labors of individuals would contribute to the common good. Smith was especially concerned with the plight of the underprivileged. Ethics naturally loomed large in his system, as he was professor of moral philosophy at Glasgow. Of Quesnay's school he wrote that all of their very numerous works "fol-

low implicitly, and without any sensible variation, the doctrine of M. Quesnay."

Quesnay sought to supplant empiricism in economics by scientific planning and administration. This attitude was based upon his medical experience and observation. Luxury, war and extravagance had produced an exhausted treasury and increasing debt. Taxes were excessive. There were even duties on goods passing from one French province to another. The system of tax gathering was itself a vicious racket. Land values were kept from rising. There was a policy whereby wages and other expenses of manufacturing were kept low in order to favor the exportation of merchandise. Quesnay saw the larger implications of agriculture through his life as a child and learned statecraft and finance in his life at Court as the King's physician. He saw the effects of the famines of the last years of Louis XIV and that of 1723. He saw how arbitrarily obtained was the food supply of the great cities. He was familiar with the wretchedness of the rural districts. At Versailles he saw the complete selfishness of the Court and the enormous fortunes made by contractors. The statesmen were mere empirics, when they were not grafters. He was "led to believe that in applying to the science of government the methods which he had used in medical science he might be able to exercise a beneficial influence." So his *Tableau Économique* (1753-1758) visualized the distribution of wealth and was based on the mechanism of the circulation of the blood. In it he applied the facts of the animal economy to the economy of society. This was his principal work and the chief manifesto of the school, indeed its credo or Bible. The elder Mirabeau, in a passage quoted by Adam Smith in his *Wealth of Nations*, names it as one of the three great inventions which have contributed most to the stability of society, the other two being those of writing and of money. The *Tableau* aimed to show by certain formulæ how agricultural products (then the chief source of wealth) would, provided perfect liberty existed, be distributed among the productive classes of the proprietors and tillers of land and the unproductive classes (as Quesnay considered them) of manufacturers and merchants. Other formulæ

showed what happened to rational distribution when the restraining regulations of government came into play; evil results regularly flowed from violations of the natural order. It followed theoretically that what the practical economist and the statesman ought to be most concerned about is the increase of the net product or surplus (*produit net*). To be inferred is what Adam Smith afterward affirmed, that the interest of the landowner is "strictly and indissolubly connected with the general interest of society."

PROPERLY, Quesnay saw the situation as he saw disease and, in the opinion of Higgs, "had his economic counsels been followed, with a view to curing the 'enormous degradation' of the population, the French Revolution would have been averted." Hendrik Willem van Loon declares that "he could have saved France" if his intellectual contribution had been accepted and applied. A partial application was indeed made by Quesnay's colleague Turgot, Finance Minister to Louis XVI, who, alone among the statesmen of the day in France, examined the basic elements of economic life as a physicist would investigate the properties of matter. Turgot's reforms included free trade between the provinces, emphasis on agriculture, industrial developments, road building, improvement in the finances, abolishment of certain sinecures and monopolies, and restoration of free trade in grain; he opposed the tax exemptions of the privileged and exposed the need for reform to avert revolution and the monarchy's unwillingness to effect it; he tried to spread the *corvée* among all classes—this was a tax which took the form of a certain number of days devoted to labor for the government. Turgot "removed twenty-three different burdens which oppressed people, commerce, manufactures, and agriculture" (Haney).

The economics of Quesnay was in part a branch of the moral philosophy of the day; it involved ethics, God, and at the same time a strong materialism. Divinity was the corner stone of his *ordre naturel*. But "at the same time that the Physiocrats were arguing for the free play of self-interest, they were upholding the need of strong, centralized

government which would overcome the difficulties among men and differences in desirability of occupations" (Haney). Government was only needed to maintain property rights and carry out as far as possible the order of nature, but it must needs be strong in order to attain this objective. The revolt of the Physiocrats was against artificial wealth founded upon special privilege (political artifices). Hence their concern with nature, natural wealth and natural liberty.

One of the principal disciples of Quesnay, the superlatively able Pierre Samuel du Pont de Nemours, placed a Latin motto upon the title page of his work *Physiocratie ou constitution naturelle du gouvernement le plus avantageux au genre humain* which set forth that the government most beneficial to humanity originates not from the arbitrary regulation and control of men, but from right order and obedience to the laws of Nature:

Ex natura, jus ordo et leges;
Ex homine, arbitrium regimen et coercitio

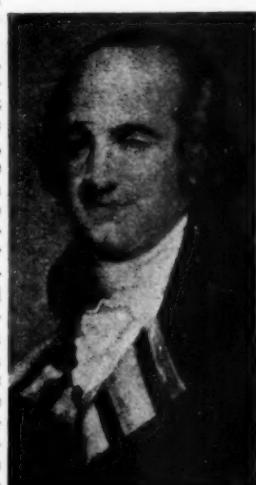
THE influence of Rousseau with regard to an ideal order of things, whose arrangements are perfect, will be seen in the ideas of Quesnay, although this has been much discounted. The influence of Locke, Spinoza, Thomas Aquinas, Descartes, Malebranche and D'Alembert may be traced. That nation is best governed whose laws (*ordre positif*) most nearly express the constitution of the natural order.

One can readily see that Quesnay extended to the economic sphere the theory of natural liberty which Locke, Hutchinson and Shaftesbury had applied to the sphere of politics and religion, but he differed from them in denying that the natural rights of the individual could be abridged by any social contract. This despite his advocacy of a strong government, a "legal despotism, tempered only by an enlightened public opinion." Quesnay held that every man has a right to the undisturbed enjoyment of the property which results from the exercise of his faculties in productive labor. "It follows from these rights that the sole function of government is to protect life and property and to administer justice, and no interference by the

government with commerce and industry is permissible." The classic phrases of the school were *laissez faire*, or a demand for freedom from onerous restrictions in production, and *laissez passer*, or a demand for freedom of exchange. Quesnay held to the notion that a system so motivated could function despite a strong government.

Today we see Walter Lippmann, in his new book, *An Inquiry Into the Principles of the Good Society*, reverting to Quesnay's demand for a free market. The powerful influence of this French type of economic thought, which goes back from Lippmann to Thomas Jefferson, with his "That government is best which governs least," and with his Declaration of Independence, is easily discernible.

Jefferson, by the way, who became our Minister to France in 1784, was a close friend of that brilliant Frenchman whom we have already mentioned, Pierre Samuel du Pont de Nemours (1737-1817), founder of the American family so justly famous in our industrial annals, and closely associated with Quesnay in his economic studies (the Jefferson-Du Pont Correspondence covering the years 1798-1817 was published in 1930). Du



Pierre Samuel du Pont de Nemours

Pont was the editor and publisher of the works of Quesnay and Turgot and of the Physiocratic journals. Indeed, in 1767, he bestowed the name of Physiocracy (the rule of nature) upon Quesnay's system in the work already cited in this article (*Physiocratie*). It was Du Pont who pre-

pared, at the request of Jefferson, our first scheme of national education, which, however, was never adopted in the United States but was partially embodied in the French code. He was an ardent advocate of the cause of American liberty; adjusted, as France's Commissary General of Commerce, the commercial differences between France and the United States (with Jefferson); drafted (1782) the treaty recognizing the independence of the United States; and arranged the transfer of Louisiana to the United States. Through him and Jefferson, indirectly, Quesnay may be seen influencing the early crystallization of American thought on such subjects as liberty of the press, the removal of restrictions on commerce and labor, the abolition of slavery and of exclusive privileges, and the suppression of oppressive taxes, for which things Du Pont, as an outstanding Physiocrat, stood aggressively. The Du Pont family tradition, in America, of good citizenship, goes right back to this noble progenitor, who ended his days of supreme usefulness in 1817, dying on the Delaware estate of his son Eleuthère Irénée.

WHEN only the other day Lammot du Pont said he didn't believe in any government regulation, not even traffic signals, it was Pierre Samuel du Pont de Nemours who was really speaking, and to him we should still pay heed as a Founder of our system. The Du Pont industries have operated to date with complete efficiency and with all the éclat of creative science, despite governmental traffic signals, and have thus furnished an example of the triumph of a precious individualism over the irksome obstacles laid down by politicians and bureaucrats bent upon regimentation and upon winning the applause of mobs—a great service indeed, and a rôle which every American adhering to tradition would play if he could.



FAILURE of the Physiocrats was in part due to bad harvests; the dearness of bread was blamed upon them. They were also subjected to the satirical shafts of Voltaire. The death of Madame de Pompadour in 1764 was a blow.

They were impractical, incapable of compromise or adjustment to meet local and transitional conditions, had a curious lack of realization of the depth of ignorance and prejudice of their contemporaries, and did not take into proper account the interested opposition of politicians. In short, they were incorrigible idealists.

What saved them from violence? Probably the seemingly chimerical nature of their beliefs and teachings, though it is true that the elder Mirabeau was sent to the Bastile for saying that there were no services without money, and that the King had no money to pay for services.



Quesnay and his group, working with prodigious energy in his apartment in the palace, have been compared to the old painters working under the direction of a master. The atmosphere of that workshop was feverish; there was nothing dull or academic about its curriculum in economics, for around this clinic and laboratory a stupendous drama of greed and exploitation was being played; society was sick unto death; an unofficial "brain trust" was trying heroically but ineffectually to stem the fearful tide that they knew was soon to set in—a tide presaged by Louis XV when he said: "After us the deluge." Their failure is history, but many of their ideas are incorporated today in our everyday thinking and in the economic principles and practices of our system, for the intellectual vitality that begot Quesnay and his pupils was a formidable force.

ALLERGY IN THE ORAL MUCOSA

White in the *Journal of the American Dental Association* presents a new field of allergy, allergic conditions in the oral mucosa. Dr. White defines allergy as a state in which certain groups of cells or organs of the human body react in a specific manner when brought into contact with a substance which is foreign to

the organ or the cells—thus similar to modified sensitivity.

Allergic manifestations in general can be caused by ingestion of foods or medicaments, by breathing-in certain materials and by contact with extraneous substances. Clinical symptoms of these manifestations in the mouth range from small papular and vesicular lesions to deep ulcerations and even chronic thickening.

Food allergy is most common in the mouth, and is caused by such common foods as chocolate, tomato, orange, egg, potato, and milk. In selecting causative foods Dr. White uses a basic nonallergic diet of coffee, tea, carrots, lettuce, prunes, plums, apricots, lamb, veal, rye krisp, olive oil, plum jam and peppermint candy for a week. If no lesions appear other foods are added one by one until the causative ones are found. Active desensitization to these is not very successful but immunity can usually be established by abstinence for long periods of time.

A DISTINCTION AND A DEFINITION

All forms of compulsion, prohibition, and paternalism should be reserved for the enemies and wards of society. Society—meaning the self-respecting, self-supporting free-men members of the community—forms the government, not the government, society.

—W. G. HERRMAN, M. D.
J. Med. Soc. New Jersey, Oct., 37.

THE A.M.A.'S BUREAU OF HEALTH AND PUBLIC INSTRUCTION

The Bureau of Health and Public Instruction, first organized as a council in 1910 and reorganized as a bureau in 1923, is closely affiliated with *Hygeia*, the Health Magazine. The director of the Bureau is associate editor of *Hygeia* and the assistant director is a member of the *Hygeia* editorial board.

—W. W. BAUER, M. D.
J. Social Hygiene, Oct., '37

Economics

Department Edited by Thomas A. McGoldrick, M.D., LL.D.

CARREL THE SEER

DR. ALEXIS CARREL thinks that the renovation of civilized man would cost less than the upkeep of industrial and medical research, and that it is more important to improve man than the goods consumed by him. What good are health and comfort "if we become mentally and spiritually worthless? Those who have given their lives to the search for the prevention and cure of disease are keenly disappointed in observing that their efforts have resulted in a large number of healthy defectives, healthy lunatics and healthy criminals. And in no progress of man."

Carrel believes that the quality of life is more important than life itself. There should be an institute for the collective investigation of human problems and the construction of truly civilized man. Such an institute would weld biology, psychology and economics and study spiritual as well as material values. Our specialists, as such, are incapable of synthesizing the data involved. Man as a whole can only be understood and improved by universalistic minds. As things are now the production of the more gifted individuals is decreasing at the same time that our social, economic and political problems are growing more complex. The Institute of Psychobiology would supply the information necessary for men and nations under civilized conditions; it would acquire profound knowledge of the body and mind alike. Carrel denies that his plan is Utopian. He argues, plausibly enough, that nervous fragility, intellectual weakness, moral corruption and insanity are more dangerous for the future of civilization than yellow fever, typhus and cancer.

It is true that we devote an inordinate amount of energy to such things as in-

dustrial progress while neglecting such basic considerations as Carrel advances.

The solution of our difficulties, says Carrel, rests upon science; there must be established a true science of man; we must use theoretical and applied science, not for the satisfaction of curiosity, but for the betterment of man and his civilization; it is obvious that we are not now able adequately to cope with modern social, economic and political problems and that we are "losing the courage to live."

—A. C. J.

PROTAMINE INSULIN AND DIABETES TREATMENT

—Concluded from page 610

proved distinctly helpful and very commonly serves to regulate the sugar more easily and with fewer doses than the regular commercial form of insulin. On the whole I find it the best means for maintaining normal control of this most difficult type of case. Its action appears more prolonged and uniform than that of the regular insulin, though not equal to the duration of the protamine insulin. The reactions resulting are more definitely predictable and less troublesome than from the protamine insulin, and the change from the old insulin is simpler. It cannot, like the protamine insulin, control diabetes of any considerable severity with one dose in 24 hours, but such control can ordinarily be achieved with two doses.

IN CONCLUSION, I have expressed merely my personal preference for moderate composition of diets and for normal physiological standards in diabetic treatment, together with some disappointment at the disregard of scientific requirements of proof by the majority of authors who have attempted to introduce clinical innovations.

1031 FIFTH AVENUE.

MEDICAL TIMES • DECEMBER, 1937

Cancer

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FROM 1925 to 1936, inclusive, there have been seventy-four cases of cancer of the uterus admitted to the Park Avenue Hospital, Rochester, N. Y. Forty-eight of these were cases of cancer of the cervix and twenty-six were cases of cancer of the body of the uterus. Four of the cancers of the cervix were cancers of the remaining portion of the cervix after supravaginal hysterectomy. Two of the patients had the supravaginal hysterectomy in other hospitals; and two in this hospital. Three are dead and one is living. The patient who is alive and well was operated on in December, 1926. These cases represent 8.33 percent of all the cases of cancer of the cervix and four percent of all cases of cancer of the uterus. These cases of cancer of the cervical stump have led us to attempt to consolidate the views of those who have studied the question of stump cancer in recent years.

Jeanneney (10) says that, in view of the fact that cancer sometimes develops in the remaining cervix after subtotal hysterectomy for cancer of the body of the uterus, total hysterectomy is the method of choice for the operative treatment of cancer of the uterus.

Healy and Cutler (7) say that the prognosis of carcinoma of the fundus of the uterus treated with supravaginal hysterectomy may be rendered favorable by prompt irradiation of the stump.

They found five cases of stump cancer in 100 cases of cancer of the uterine body. The subtotal hysterectomy was done because the uterine lesion was thought, clinically, to be fibromyoma. Three of these five cases lived without recurrence for more than five years, (60.0 percent).

Branscomb (1) reports forty-six cases of cancer of the cervical stump in 1,804 cases of cancer of the cervix (2.5 percent). In all of these cases supravaginal hysterectomy had been done for non-malignant disease.

He recommends that a thorough study for evidence of malignant disease both of the body of the uterus and of the cervix should be made before subtotal hysterectomy is undertaken. He is also of the opinion that patients who have had a supravaginal hysterectomy should be kept under observation and instructed in the significance of bleeding or of vaginal discharge.

C. H. MAYO AND C. MAYO, 2ND, (12) are of the opinion that the likelihood of the development of cancer of the stump after supravaginal hysterectomy is "ever present." Between 1910 and 1930, ninety-nine patients with stump cancer were seen in the Mayo Clinic. In twelve of these the carcinoma developed in the stump after operation for benign conditions and in three after subtotal hysterectomy for questionably malignant conditions in the Mayo Clinic.

CANCER OF THE STUMP OF THE CERVIX OF THE UTERUS

Of the cases that had originally been operated elsewhere and in which the stump cancer was diagnosed in the Mayo Clinic, twenty-three were operated for benign lesions and sixty-one for questionably benign lesions.

Herold (9), in eighty cases of cancer of the stump of the cervix, reported that 39.0 percent occurred within the first three years; 11.0 percent developed between three and five years, and 50.0 percent appeared later than five years after operation.

It seems to us that a cervical cancer appearing more than five years after supravaginal hysterectomy is about as likely to be an entirely new malignancy as it is to be a recurrence of, or a metastasis from, an old one. Furthermore, as Herold points out, stump cancers are usually mucous membrane epitheliomata, while the carcinomata of the fundus are usually adenocarcinomata. Herold asks the following question: "Does the possibility of the development of carcinoma of the stump justify the rejection of supravaginal amputation of the uterus?" His answer is: "No." His experience in 12,273 cases of supravaginal amputation at Jena gave 0.65 percent development of cancer in the stump. He points out that the operative mortality in cases of supravaginal hysterectomy is 1.9 percent while in total hysterectomy it is 3.6 percent. He thinks that many of the stump cases are cases of cancer of the cervix that were overlooked at the time of the hysterectomy.

WALDEYER (21) favors total hysterectomy in order to do away with the possibility of the development of cancer in the stump in spite of the fact that there is a higher postoperative mortality in total than in subtotal hysterectomy. He reports fourteen cases, seven of which developed later than five years after the total hysterectomy.

Pearse (14), in a study of 1,900 cases, operated upon between 1900 and 1925, found that he could trace 1,006 for a five-year period or longer. Twelve of these cases (1.19 percent) died of cancer of the cervix. In two of them the cervical cancer was known to be present when the supravaginal hysterectomy was done; two had unsuspected cancer of the

cervix and eight developed stump cancer later.

He is of the opinion that unless the operative mortality from total hysterectomy can be shown to be the same or less than that from subtotal hysterectomy in the same type of case, the possibility of the development of cancer of the cervical stump should not be considered to demand the former operative procedure. However, before subtotal hysterectomy is undertaken, the cervix, in every case, should be critically scrutinized for evidence of malignancy, resorting to biopsy on the slightest suspicion.

Fahndrich (3) estimates the frequency of carcinoma of the cervical stump as 0.28 percent of the total number of subtotal hysterectomies in the gynecological clinic at Kiel. He feels that the risk of cancer of the cervical stump is so slight that the risk attending the greater mortality following total hysterectomy is not warranted.

The author emphasizes, however, the necessity for the study of every myomatous uterus removed to determine the presence or the absence of coincident malignant change in the portion nearest the cervix or in the cervix itself. In the postoperative study the gynecologist should remember that between 2.0 and 4.0 percent of uterine myomata show malignant change.

BETWEEN November, 1926 and July, 1933, in the Department of Obstetrics and Gynecology of the State University of Iowa, von Graff (20) reports the occurrence of 458 cases of malignant tumors of the female genitalia. In this material were twenty-two cases of cancer of the cervical stump after subtotal hysterectomy or 4.8 percent of all the malignant tumors, 6.1 percent of 358 malignant tumors of the uterus, 6.3 percent of 344 cases of cancer of the uterus, and 8.3 percent of 263 cases of cancer of the cervix.

In a review of the literature and in answer to a questionnaire he collected 1,169 cases of cancer of the cervical stump after supravaginal hysterectomy, 804 of which were reported since 1920. He concludes that cancer of the cervical stump is much more frequent than is generally recognized; that it is more frequently found in patients with uterine

fibroids, and that, consequently, these patients are more likely to develop cancer of the stump than patients without fibroids; that more than 80.0 percent of stump cancers originate from the squamous cell epithelium of the vaginal portion of the cervix; and that total hysterectomy, which should, consequently, be routinely done, is the only safe protection against stump cancer.

He is of the opinion that "a patient with an amputated uterus is menaced all her life by the possibility of cancer of the cervix." Healy (5) is of the opinion that the prognosis of stump cancer is less favorable than that of cancer of the cervix of the intact uterus.

Siddall and Mack (19) from the Harper Hospital (Detroit) between the years 1928 and 1932, inclusive, report a postoperative mortality of 2.6 percent of 1,141 cases of subtotal hysterectomy (lowest 1.0 percent in 1932; highest 3.8 percent in 1930). On the other hand, the postoperative mortality in 235 cases of total hysterectomy was 6.4 percent (lowest 2.9 percent in 1930; highest 9.1 percent in 1928).

IN 7,795 cases reported by seven writers the postoperative mortality of subtotal hysterectomy varied from 1.2 percent to 4.47 percent. On the other hand, in 4,559 cases of total hysterectomy reported by the same authors the postoperative mortality varied from 1.3 percent to 4.72 percent. They, consequently, conclude that the danger of carcinoma developing in the stump of the cervix after subtotal hysterectomy is seemingly sufficiently great to justify the additional risk of the total operation, except in a few instances.

Kretzschmar and Gardiner (11) report that 1,022 cases of cancer of the cervix were seen in the Gynecologic Department of the University of Michigan Hospital between 1902 and 1932, inclusive. Eighteen of the cases developed in the cervical stump one year or longer after supravaginal hysterectomy, 1.76 percent. Eleven of these patients had been operated for uterine fibroids. They are of the opinion that a stump cancer that develops during the first year after operation may be considered to have been present at the time of the operation. Of 416 patients with a previous subtotal

hysterectomy who replied to a questionnaire, one proved case and five probable cases of stump cancer, 1.44 percent, were found.

Healy and Arneson (6) contribute an analysis of 2,600 patients seen in the Gynecological Clinic of Memorial Hospital (New York) between January, 1920, and July, 1933, with a diagnosis of carcinoma of the cervix. Sixty-seven of these (2.6 percent) had stump cancer. In thirty-two of these cases there was an interval of from three to ten years between the subtotal hysterectomy and the diagnosis of cancer of the remaining cervix. In twenty-five there was an interval of from ten to twenty years; in seven the interval was from twenty to thirty years; and in seven more than thirty years had passed between the operation and the discovery of the cancer. The authors conclude that the low incidence of stump carcinoma does not justify the increased operative risk involved in a total hysterectomy merely as a preventive of the later occurrence of cancer of the stump.

THE five year survival of patients with cancer of the cervical stump in the series was 14.0 percent. This is lower than the survival of all cases of carcinoma of the cervix. They attribute the poor results partly to insufficient irradiation and partly to the difficulties in making a correct application of radium on account of the absence of the body of the uterus. The authors say that it might be expected that patients who had submitted to a major operative procedure would report earlier to their physicians when unusual symptoms occur. In this series this was not the case; they applied for examination no earlier than other patients with cervical cancer.

Farrar (4) is of the opinion that total abdominal hysterectomy has been performed by many surgeons with a mortality as low or lower than that of subtotal hysterectomy and should be the operation of choice for benign lesions of the uterus necessitating hysterectomy.

Phaneuf (15) reports the case of a woman who had had a supravaginal hysterectomy in 1928 for uterine fibroids. The pathologist reported that there was a carcinoma involving the cut surface of

the cervix; but apparently no attention was paid to the report. He had seen eight cases of stump cancer in twenty years.

Henriksen (8) found twenty-two cases of cancer of the stump in 940 cases of cancer of the cervix (2.34 percent).

Meigs (13) contributes a study of eighty cases diagnosed carcinoma of the cervix following supravaginal hysterectomy from the records of the Massachusetts General Hospital and the Massachusetts State Cancer Hospital. Of these, twenty-two were recurrences in the vaginal vault following total hysterectomy. In twenty-three cases the cancer of the cervix had been present at the time of the original operation and in nine the disease in the stump was a recurrence of adenocarcinoma of the body of the uterus for which the subtotal hysterectomy had been undertaken. Twenty-six of the eighty cases, therefore, were true stump cancers.

Commenting on the nine cases in which a subtotal hysterectomy was performed for adenocarcinoma of the body of the uterus, the author says: "This group of nine cases stands as a monument to a surgical procedure that cannot be too severely condemned."

IN approaching pelvic surgery the surgeon should employ inspection, Schiller's test, and the colposcope and should make a careful examination of the cervix in the operating room before deciding upon the type of operation to be performed. Total hysterectomy cannot be advised in every case; but it should be if the reasoning of its proponents is correct. On the other hand, supravaginal hysterectomy should not be advocated as a routine measure, because a badly lacerated and infected cervix is a menace. The decision between the two methods should be made by the individual operator in each case. Nulliparous cervixes are dangerous, especially in those patients who have had fibroids.

Scheffey and Thudium (17) found seven cases of stump cancer in 156 cases of cancer of the cervix (4.48 percent). (Jefferson Medical College Hospital).

In a later paper Scheffey (16) goes into the subject at greater length. Between September 1, 1921, and September

1, 1935, there were 5,433 admissions to the Gynecological Service of the Jefferson Medical College Hospital. Of these there were 273 cases of carcinoma of the cervix (5.02 percent). Ten of these patients had had a previous subtotal hysterectomy, (3.66 percent). On the other hand, in 697 cases in which supravaginal hysterectomy was done for uncomplicated fibromyomata, fibromyomata complicated by inflammatory pelvic lesions, or for chronic pelvic inflammatory lesions not complicated by fibromyomata, there were fourteen postoperative deaths (2.0 percent).

In a postoperative follow-up clinic, 554 of the remaining 683 patients had been traced. Carcinoma of the cervical stump was found in five of these (0.9 percent).

ANALYZING the ten cases of stump cancer following subtotal hysterectomy three probably had carcinoma of the cervix, which was overlooked at the time of the supravaginal hysterectomy. In two others the existence of cancer of the cervix at the time of operation, while questionable, is quite possible. In the remaining five cases the stump cancer was not discovered until six, seven, nine, ten, and twenty-one years, respectively, after the hysterectomy. Of the same ten patients, three were alive and well eight years, one four years and one two years, after treatment. Three of the five living patients were treated with radium alone, and two with radium and Röntgen irradiation.

Scheffey says that the likelihood of the development of cancer of the stump after subtotal hysterectomy may be reduced and, in many instances, prevented by careful inspection and biopsy of the cervix, with subsequent cauterization, trachelotomy or trachelorrhaphy before the hysterectomy is done.

Schmitz (18) found eight cases of cancer of the cervical stump among eighty-nine cases of carcinoma of the female generative organs, seen at the Mercy Hospital Institute of Radiation Therapy (Chicago) between May 15, 1933, and June 1, 1934 (8.98 percent).

Erdmann (2) is of the opinion that carcinoma, developing in the cervical stump within one year after subtotal hysterectomy, is in all probability a car-

cinoma that was overlooked at the time of the operation. On the other hand, he considers a carcinoma that develops later than one year following subtotal hysterectomy to be a primary carcinoma of the stump of the cervix.

He is of the opinion that subtotal hysterectomy should not be discarded on account of the danger of subsequent stump cancer, because the incidence is low. However, when a fibroid is complicated by a lacerated and infected cervix, total hysterectomy should be done.

Summary

1. Frequency.—This review is based on 1,667 cases of reported cancer of the remaining cervix after supravaginal hysterectomy. One hundred and ninety-seven of these cases were found in studies of 7,755 cases of cancer of the cervix (2.54 percent). One hundred and seven occurred after supravaginal hysterectomy for all conditions in 18,712 patients (0.57 percent).

Let us say that about 3.0 percent of all cases of cancer of the cervix are cancers of the cervical stump, and about 1.0 percent are cancers following subtotal hysterectomy for both benign and malignant lesions.

2. Should subtotal hysterectomy be discarded as a recognized method of treatment in cases of uterine disease? None of the authors comes out definitely in condemning supravaginal hysterectomy. Von Graff, however, thinks total hysterectomy should be "routinely

done," and Jeanneney and Farrar think it is the method of choice, the latter specifying "for benign conditions." Herold, Pearse, Healy and Arneson, Fahndrich, and Erdmann plainly state that the operation should not be discarded. Jeanneney, Waldeyer, and Farrar, however, prefer total hysterectomy.

3. It is plainly to be seen that having elected to do a supravaginal operation, the surgeon should first convince himself that, in addition to the lesion for which the operation is proposed, carcinoma of the cervix is not present.

4. The condemnation of supravaginal hysterectomy in a case of adenocarcinoma of the body of the uterus is justified. And it seems to us that this condemnation should apply also to chorioneplielioma.

5. The disregard of the report of a competent pathologist that the cut surface of the cervix presented a carcinoma, in a case in which subtotal hysterectomy for uterine fibroids was done, as reported by Phaneuf, is a gross error of judgment on the part of the clinician.

6. From the point of view of prevention, it seems to us necessary to urge the patient who has had a supravaginal hysterectomy to have frequent pelvic examinations made in order to detect early departures from the normal in the cervical stump. Furthermore, it is necessary to urge the clinician to remember that cancer of the stump is likely to follow 3.0 percent of his subtotal hysterectomies.

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Associated Physicians

OF LONG ISLAND



Fortieth Anniversary of the Associated Physicians of Long Island to be Celebrated in Brooklyn Saturday, Jan. 29, 1938; Clinical Day in St. Mary's Hospital and Dinner in Granada Hotel.

BACK in 1898, when typhoid fever was still a scourge and new experience had resulted from the Spanish-American War, the doctors of Long Island realized that they needed a medical society which could serve as a clearing house for interchanging up-to-date modes of diagnosis and treatment. The Associated Physicians of Long Island was organized and it immediately became an important factor in bringing together the urban doctors of Queens and Kings with the suburban doctors of Nassau and Suffolk. It has served to acquaint the Island members with the facilities of the Brooklyn hospitals, particularly in the past when the small suburban and more rural districts did not have their own hospitals.

FORTY years have elapsed since Dr. William Browning and Dr. L. N. Lanehart had the sagacity to initiate the movement which gave the Associated Physicians of Long Island its strong beginning. This record calls for a Fortieth Anniversary Celebration on Saturday, Jan. 29, 1938 in Brooklyn. The usual clinical day will be held in the St. Mary's Hospital, where a strong program awaits. It is an innovation to be the guests of St. Mary's Hospital, and a large number of members will be repaid for their effort if they attend the clinical session, primarily to witness and hear the excel-

lent program, and of next importance to inspect the hospital and meet the staff.

The Anniversary Dinner is going to be a record-breaker. We will be honoring two groups of members at this time, the revered charter members, and the past presidents. Of the 95 charter members, there are 18 surviving members who can regale us with tales of the turn of the century and the activities of the new Association which is still going strong forty years later. A great many of these charter members have also served in the office of president at some time, and can recall many an interesting episode which occurred at the dinners of the "House of Lords," as the past presidents have always been called.

Membership is being maintained at or about the 600 figure to which we have been limited this year through the change in the by-laws. This is tending to make members prize their membership and to put applications for membership on a competitive basis, and a waiting list virtually exists. If men who have come into the society in recent years will attend the fortieth anniversary dinner, they will receive inspiration upon meeting Dr. Browning, Dr. Van Cott, Dr. De Forrest, Dr. Napier and a host of others who founded this society and whose continued interest and activity have given dignity to meetings.

Contemporary Progress

Neurology

The Pathology of Parkinsonism

M. NEUSTAEDTER and A. F. LIBER (*Journal of Nervous and Mental Disease*, 86:264, September, 1937) report a pathological study of the brain and spinal cord in 15 cases of Parkinsonism — 13 post-encephalitic and 2 idiopathic. In these cases, the large putameno-caudal cells of the striatum showed various degrees of destruction in all cases; the cells of the globus pallidus also showed marked damage in all cases. The small putameno-caudal cells were slightly affected in one idiopathic case, and showed considerable damage in 3 post-encephalitic cases. The nucleus ruber was affected in all except one case (post-encephalitic); the dentate nucleus showed various stages of degeneration in 12 post-encephalitic cases and one idiopathic case; the olives in the medulla were markedly affected in both idiopathic cases and 11 post-encephalitic cases. The substantia nigra was definitely affected in all the post-encephalitic cases, but was fairly intact in the 2 idiopathic cases. The authors conclude that "in the face of such diverse pathology it would be

futile to attempt any definite localization for any one symptom or the entire syndrome of the various types of Parkinson's disease."

COMMENT

This abundant pathological material amply reaffirms older findings in this clinical condition. It does not aid in explaining the pathologic physiology found in these cases.

H.R.M.

Intravenous Injection of Hypertonic Dextrose Solution in Cases of Brain Tumor

F. G. LINDE-MULDER (*American Journal of Medical Sciences*, 194:554, October, 1937) reports a study of the effect of the intravenous injection of a 50 per cent dextrose solution on the cerebro-spinal fluid pressure in 6 cases of brain tumor (later confirmed by operation), 2 cases of gumma of the brain, and one case of old skull fracture. Manometer readings were made frequently

for two hours after the intravenous injection. In only one of these cases was the cerebrospinal fluid pressure reduced by the intravenous injection of the hypertonic dextrose solution without reaching a higher level than the original pressure at some time during the experiment. In 7 cases there was an initial rise in pressure, which was subsequently followed by a fall, but then by

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a secondary rise that brought the pressure to a higher level than before. These studies show that the effects of the intravenous injection of hypertonic dextrose solution on the cerebrospinal fluid pressure are valuable in cases of brain tumor. This procedure may be tried in cases where a rapid drop in pressure is desired, but it should be supplemented by other methods of dehydration.

Funicular Degeneration of the Spinal Cord without Pernicious Anemia

H. W. WOLTMAN and F. J. HECK (*Archives of Internal Medicine*, 60:272, August, 1937) report the study of 77 cases at the Mayo Clinic in which there were signs of involvement of the posterior and lateral columns of the spinal cord, and in which free hydrochloric acid was present in the gastric contents—the latter finding practically eliminating the diagnosis of pernicious anemia. In 8 of these cases there were gradually developing, symmetrical persistent paresthesias of the hands and feet, the clinical neurological picture being that typically seen in pernicious anemia. In 3 of these cases there was no evidence of a nutritional deficiency of any kind, in 5 a possibility of some nutritional deficiency. Examination of the spinal fluid may increase the accuracy of diagnosis in such cases, but in none of the cases reported could the exact pathological nature of the cord lesion be determined. In 93 cases of sprue and related conditions observed at the Clinic, gastric analysis showed the presence of free hydrochloric acid in 52 cases, which was regarded as evidence that there were no cases of pernicious anemia in this group. Neurological examination in 29 of these 52 cases showed evidence of organic involvement of the nervous system in 11 cases; in 10, vibratory sensibility was impaired or absent; in 6 there had been continuous paresthesias of the hands and feet; in 6 cases the tendon reflexes were diminished or absent; and increased in one case. Macrocytosis was present in 8 cases. One case is reported in which the clinical findings indicated subacute combined degeneration of the cord; the symptoms disappeared under intensive administration of liver by intramuscular injection.

COMMENT

We are all confronted with patients presenting this clinical picture of a postero-lateral sclerosis, certainly in the findings relative to the nervous system shown as deviation from the picture revealed by the real subacute combined-sclerosis due to the pernicious anemia factor. In my experience they fail to respond to liver therapy; and present discouraging clinical problems.

H.R.M.

Meningiomas

J. H. GLOBUS (*Archives of Neurology and Psychiatry*, 38:667, October, 1937) discusses the meningiomas on the basis of a histological study of 143 meningeal tumors, including 46 obtained at autopsy and 57 obtained at operation. In attempting to explain the variations in structure observed in these tumors and trace their probable source of origin, he found it necessary to relate these tumors to the phylogenetic and ontogenetic processes taking place in the development of the meninges. In some of these tumors the several constituents "reduplicating all the primitive parts of the meninges" may be present in more or less equal amounts; in others these various constituents occur "in different ratios;" in some the dural component predominates, in some, the pial component; and in others the arachnoid component. There is no sharp demarcation between the mesenchymatous meningiomas and the pial forms, as there are many transitional forms. In most meningeal tumors there is a preponderance of "tissue elements with vascular orientation," and in a considerable number this results in a hemangiomatous character. In some instances, especially in the more vascular tumors, sarcomatous changes develop. Thus there are many possible variations in the histological character of tumors arising in the meninges, but this does not disprove "their common derivation from the primitive meninx." On the basis of his findings, the author proposes the following classification for meningeal tumors: 1. Meningioma indifferentiate, or mesenchymatous meningioma—duplicating the structure of the mesenchymatous anlage of the meninges. 2. Meningioma omniforme or primitive meningioma—duplicating all the structures derived from the primitive meninx—in an ad-

vanced stage of differentiation; it may contain bone, fibrous tissue, arachnoid cells, and vascular channels denoting a pial origin; the coexistence of all these tissues in the same tumor is explained by the fact that the undifferentiated meningeal primordium contains "the ingredients essential for the elaboration of all these components. 3. Meningioma pachymeningeale or dural fibroblastoma—a tumor in which the dura alone is represented containing cells of the epithelial type in interlacing bundles of collagenous fibers; arachnoid structures, and possibly some of pial origin will be found by careful search; this is a rare type of meningeal tumor. 4. Meningioma leptomeningeale or arachnoid meningioma—a tumor in which arachnoid structures predominate with some pial derivatives. 5. Meningioma piale—pial or vascular meningioma—a tumor in which vascular structures dominate the histological picture, differentiated into subgroups according to the character and degree of maturity of the vascular elements: hemangiopericytomatic, hemangiomatic, and psammomatous subgroups. 6. Sarcomatous meningioma—closely related to the mesenchymatous and pial forms of meningioma; it may be either diffuse meningeal sarcomatosis or circumscribed intracerebral sarcoma. The author states in the larger number of meningiomas studied by him, the tumor had invaded the brain tissue to variable depths, although Cushing, Mallery and Penfield have stated that meningiomas do not pass the pial barrier to invade the brain.

COMMENT

A very able paper. It is difficult to do it justice in a brief abstract. It should be read in the original to appreciate the wealth and beauty of the very descriptive illustrations.

The author introduces an important emphasis on the point that all meningioma are not necessarily benign. The point is not fully appreciated in the profession.

H.R.M.

*Survival and Revival of Nerve Centers
Following Acute Anemia*

C. HEYMANS and his associates in Ghent, Belgium, (*Archives of Neurology and Psychiatry*, 38:304, August, 1937) report a series of animal experiments to determine the length of survival of va-

rious nerve centers after complete arrest of the circulation. In some of these experiments the isolated, perfused head of a dog was used; in others dealing with the pneumogastric, cardioregulatory and vasomotor centers, connection between the isolated head and the trunk was maintained by means of the vagus nerve alone or the spinal cord alone. When the circulation of the perfused head was interrupted by placing clamps on the perfusing vessels or by stopping the perfusion pump, the palpebral, pupillary and motor reflexes disappeared in three to four minutes; the respiratory, cardioregulatory and vasomotor centers, temporarily excited, were paralyzed in four to five minutes. On re-establishing circulation, it was found that, if the circulation had been arrested for fifteen to twenty minutes, the palpebral and pupillary centers were "definitely paralyzed," but the vasomotor and respiratory centers could be revived without difficulty. The cardioregulatory and vasomotor centers could be revived and resume their activity if the circulation was re-established after thirty minutes. The respiratory center, which is usually considered to be the most sensitive to anemia, could be revived and resume activity, if circulation was re-established after it had been completely arrested for thirty minutes or even more (in some instances up to sixty minutes). In another series of experiments, the spleen of a "spinal" dog (B) was perfused from another dog (A). The innervation of the spleen was kept intact, but the blood supply was derived entirely from dog (A). Artificial respiration to the "spinal" dog (B) was stopped, thus arresting the circulation to the spinal centers. The spleen first contracted and then dilated, demonstrating persistence of vasomotor activity in the spinal centers for an average of twenty-five minutes after cessation of circulation to these centers. In still another series of experiments, intact animals were used and the circulation to the nerve centers was arrested by asphyxia or hemorrhage so that the animal "appeared to be dead." After varying periods of apparent death, the animal was revived by reinjections of blood, intracardiac injections of epinephrine and artificial respiration. It was found that the respiratory, cardioregulatory and vasomotor centers could

be revived, so that the animal breathed spontaneously and circulation was normal after a period of thirty minutes of apparent death. The revival of these centers was accompanied by revival of other centers, but such animals usually died in ten to fifteen hours in a state of narcosis and coma. If the arrest of circulation and the period of apparent death did not exceed five minutes, the animals usually showed complete recovery. But when the period of the arrest of circulation exceeded this limit the dogs usually exhibited symptoms indicating lesions in the cerebrum (narcosis, coma, rigidity, and hyperthermia). The authors conclude that the vegetative nerve centers (respiratory and circulatory) are relatively resistant to acute anemia and can be revived after an arrest of the circulation for as long as thirty minutes. Certain nerve centers, probably in the cerebrum, and apparently necessary for survival, are more sensitive to anemia, and are "irreparably damaged" by arrest of the circulation lasting more than five minutes. These findings may "throw light on the instances in which patients die several hours or days after revival from apparent death."

COMMENT

These carefully formulated experiments are significant in that they suggest that in the human comparable time relationships obtain. The accoucheur should not delay longer than five minutes, where cord pulsation has stopped, in accomplishing a circulatory return, because of the threatened damage to the higher centers. It is theoretically possible that Little's disease and kindred congenital disorders may be more closely linked to similar circulatory disturbances than is generally accepted.

H.R.M.

Physical Therapy

Ultra-Violet Treatment of Erysipelas

M. E. KNAPP (*Archives of Physical Therapy, 18:572, September, 1937*) reports on the results of treatment of erysipelas with ultra-violet radiation at the Minneapolis General Hospital, Minne-

apolis, Minn. The first series of cases treated by this method at the Hospital was reported by Ude and Plateau in 1929 (79 cases); in 1935 the author reported a series of 350 cases treated from 1929 to 1934; in this article he discusses 116 additional cases treated in 1935 and 1936. The results of treatment were much the same in the three series; the mortality that could be attributed directly to the erysipelas was 6.3 per cent in the first series, 7.94 per cent in the second series and 6.59 per cent in the third series. The average duration of treatment until the temperature became normal was 3.16 days, 3.90 days and 3.73 days respectively; and the average stay in the hospital was 8.2 days, 8.67 days and 7.74 days respectively. In the author's last series, extension of the disease occurred after the ultra-violet treatment was begun in 19.78 per cent, a larger percentage than in the other two series (8.94 and 7.6 per cent respectively); the author attributes this to the use of an old and inefficient lamp for a considerable time, which has since been discontinued. In the author's last series of 91 cases there were 8 deaths, but only 6 of these could be attributed directly to the erysipelas, a mortality of 6.59 per cent. In all but one of these fatal cases there was some other disease present. Erysipelas in young children has always shown a high mortality of 50 to 75 per cent. In these three series treated with the ultra-violet there were 15 children under one year of age with only 2 deaths; to this the author adds 3 infant cases from his private practice treated by the same method without a death; making a total of 2 deaths in 18 cases, or a mortality of 11.1 per cent. The dosage employed in the ultra-violet treatment of erysipelas has varied somewhat according to the resident in charge, but in general has ranged from 5 to 20 erythema doses. In some cases a mercury arc lamp; in others a cold quartz lamp was employed. The involved area and a margin of one to three inches of normal skin was exposed to the rays; in facial erysipelas, if the eyelids were not involved, the eyeballs were covered with small circles of paper to leave the eyebrows exposed. In most cases no packs were used as they "seem to inhibit the development of maximum erythema." In some instances

sterile white vaseline was applied after wrinkling and desquamation had occurred and the tenseness of the skin had been relieved.

COMMENT

The treatment of erysipelas with ultra-violet energy has so proven itself that it needs no discussion. It has passed all records made with serum or any other form of treatment.

In fact, one prominent surgeon in New York stated in writing that this treatment ranks with the introduction of insulin as an outstanding contribution in the field of modern therapeutics.

N.E.T.

Transcerebro-Spinal Calcium Iontophoresis in Bronchial Asthma

A. BARNETT (*Archives of Physical Therapy, 18:646, October, 1937*) states that transcerebral calcium iontophoresis was first used by Bourguignon in France in the treatment of spastic hemiplegia resulting from cranial traumas of war. In these cases the electrode carrying the calcium solution was applied over the trepan opening in the skull. In "medical hemiplegias" without the skull injury the electrode was applied over the eye (with the lid closed), as experiments demonstrated that the current passes from the eye through the brain. Further experiments by Bourguignon and Elipoulos indicated that calcium, introduced by this route, had an effect on the sympathetic centers. As it has been generally recognized that the sympathetic nervous system plays an important rôle in asthma, the author determined to use a modification of Bourguignon's method in a case of asthma with "an unusual sympathetic syndrome." For this purpose a block tin electrode covered with absorbent cotton soaked in a 1 per cent calcium chloride solution was applied to the left eye, and a larger electrode covered with absorbent cotton soaked in tap water was applied to the lumbar spine; a current of 4.6 milliamperes was used; treatments lasted half an hour. Treatments were given daily for one week, then every other day for three weeks. After a month's rest, during which period no attacks of bronchial asthma occurred, a second series of treatments was given. Since that time (three years) there has been no recurrence of the asthma; an associated

unilateral exophthalmos is much reduced; and the blood pressure has been reduced. Since this case showed good results 4 other cases of bronchial asthma have been treated; of these 2 have been completely relieved of their asthmatic attacks, one for two years and one, more recently treated, for nine months. In the other 2 cases, definite relief, but not cure, has been obtained; both of these cases were of long standing, and X-ray examination showed extensive perihilar and peribronchial involvement suggestive of chronic inflammatory processes. No ill effects of the treatment were observed; and the author notes the method has been used in "hundreds of cases" at Bourguignon's clinic in Paris for neurological conditions, though not for asthma.

COMMENT

Four and six-tenths milliamperes of the galvanic current, with a voltage that the human body could stand, could not possibly establish a circuit from the head to the lumbar spine; through the eye it would be even less possible.

It is also doubtful if a heavy chemical such as calcium could be introduced even through the eye. It could not pass through the true skin anyway.

The only rational explanation in these cases would be a change in the electrical charges in the nasal mucous membrane or perhaps a change in pH. This may also be the main effect of the galvanic treatment of allergic conditions, locally demonstrated in the nose.

Many of the French reports of the marvelous effects of the galvanic current must be credited to suggestion.

N.E.T.

Value of Ultra-Violet Light in Industrial Districts

EVA MORTON (*British Journal of Physical Medicine, 12:117, October, 1937*) discusses her results with the use of ultra-violet light in various clinics in industrial districts of London, England. The equipment of these clinics is very simple; in one, only a carbon arc lamp is available, in another, only a mercury vapor lamp, and in a third, both types of lamps. Dosage must be determined for each patient and applied under careful supervision. The physician must decide first whether a sub-erythema or an erythema dose is to be given. While

the exact dosage with either type of treatment varies with each patient, the author begins the sub-erythema treatment with the lamp at a minimum distance of four feet, and a treatment of a maximum of four minutes. If no erythema and no signs of intolerance develop, the doses are gradually raised to a maximum of ten minutes at four feet; or if treatment is prolonged, to four to ten minutes at three feet. Generalized treatment with sub-erythema doses has been employed in children in the treatment of anemia and debility, malnutrition (in conjunction with alteration in the diet), in nervous irritability in which no definite cause for the condition can be found, bronchitis, asthma, lymphadenitis (tuberculous and otherwise), and, of course, rickets. In all these cases, the ultra-violet light treatment has been of definite benefit. In cases with a low initial hemoglobin percentage of 75 or less, it has been found that the hemoglobin rose to 90, 95 or even 100 after twelve or more ultra-violet treatments. Symptoms of nervous irritability, sleeplessness, anorexia, etc., have been promptly relieved. Local erythema treatments with the mercury vapor lamp are used chiefly for skin diseases in children and fibrosis and neuritis in adults. In acne and psoriasis, the author has found this form of ultra-violet treatment "invaluable." Although the results in psoriasis may not be found to be permanent, this is equally true of all forms of treatment. The wide range of usefulness which ultra-violet therapy possesses, the author believes, "is due mainly to its action on the constitution itself."

COMMENT

It has been so thoroughly proven in England that ultraviolet baths are beneficial for constitutional effects upon working people that it is to be regretted industrial concerns in this country do not give their employees the benefit of such treatments.

This article stresses the importance of sub-erythema doses and shows that the best results come from studying individual cases. Too many physicians use ultraviolet light believing they must severely sunburn a patient in order to obtain good results. The effects of a severe sunburn are more psychic than physiological.

I can not agree that ultraviolet light has any specific effect on fibrosis or neuritis. Any relief of symptoms can only be attributed to the erythema and, with all we have

available in physical therapy to directly affect these conditions, we should use electricity and not rely on sunburn.

Ultraviolet sometimes brings about astounding changes in cases of psoriasis but experience shows that this remission in symptoms is never permanent.

N.E.T.

Treatment of Strains by Faradization

A. LAQUERRIÈRE (*Journal de radiologie et d'électrologie*, 21:353, August, 1937) reports the treatment of strains (chiefly strained ankle) with the faradic current. The electrodes are placed on each side of the joint, at the most painful points; they must be applied with uniform pressure. If there is much pain, or the surface of the joint is irregular, absorbent cotton or gauze well moistened may be placed underneath the metal electrode to ensure such uniform pressure. The correct placing of the electrodes is of great importance and should be done with care. The current is kept at the maximum intensity that the patient can tolerate. If more than one treatment can be given daily, the individual treatments need not exceed ten minutes. But if only one treatment a day is given this should be of twenty to thirty minutes in duration. As a rule some relief from pain is noted after the first treatment. When the pain is relieved exercise of the joint is permitted, but care must be taken to avoid fatigue. The author reports 16 cases of strained ankle, 18 cases of strain of long standing, chiefly ankle strain, and one case of wrist strain treated with this method with good results. A radiogram should always be made to ascertain whether there is any bony lesion—mal-united fracture, etc.—which must be treated by appropriate measures. Faradization is, nevertheless, of value in relieving the associated strain.

COMMENT

Faradization is about the mildest form of electrotherapy for the treatment of strains or sprains. All the other electrical currents are more effective and less painful. The outstanding is the high voltage, low milliampere static current, used first as a condenser discharge (wave current) and then the static effluvium.

N.E.T.

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Physiological Effect of Carbon-Dioxide Baths on the Circulatory System

F. M. GROEDEL (*Archives of Physical Therapy, 18:457, August, 1937*) reviews the conclusions reached on the physiological effect of carbon-dioxide water baths on the circulatory system from many years of experimentation and study. It has been found that such baths diminish the pulse rate; usually reduce blood pressure; and increase the amplitude of blood pressure. As a result of the hydrostatic pressure of the bath, the venous blood is "shunted" towards the heart; the intra-abdominal and intrapleural pressures are increased and thus the systolic working capacity of the heart is improved. At the same time the arterial circulation is "eased" through relaxation of the muscles. The capillaries are widened by the hydrostatic pressure and the carbon-dioxide; more capillaries and arterio-venous anastomoses are opened; there is an emptying of the deeply situated venous plexuses. There is a definite increase in carbon-dioxide elimination without a corresponding increase in oxygen consumption. These phenomena are produced by the retention of carbon-dioxide in the skin and its diffusion through the skin; and also by the hydrostatic pressure. The amount of circulating carbon-dioxide is increased and this exerts an influence on the circulatory centers.

COMMENT

This article in the original is a distinct contribution to the literature of cardiac therapy.

The electrocardiograph has enabled physicians to rule out the element of suggestion in evaluating the action of all therapeutic measures in heart conditions. Hence, the positive action of carbon dioxide in baths can be proven, especially in chronic myocardial conditions.

Too little work in hydrotherapy has been done in this country to discount the proven claims of students in this field in Europe, such as Groedel.

N.E.T.



Public Health, + Industrial Medicine and Social Hygiene

Tapeworm Infestation in the Southern United States

E. J. SUNKES and T. F. SELLERS (*American Journal of Public Health, 27: 893, September, 1937*) note that in the southern part of the United States, much attention has been given to nematode infestations, such as the hookworm and round worm, but comparatively little attention has been given to tapeworm infestations. The authors sent a questionnaire to 13 State Boards of Health in the South and received replies from 11 of these. The figures obtained from these State reports were combined with figures obtained by some recent surveys in Georgia by the authors and their associates in the State Department of Health, giving a total of 927,625 fecal examinations. In this series tapeworms were found in 8,085 cases—an incidence of 0.87 per cent. But as some of the State Reports available did not classify their positive findings in regard to types, the types of tapeworm infestations were known in only 7,249 cases, representing 650,653 examinations. In these 7,249 the dwarf tapeworm (*Hymenolepis nana*) was found in 7,149, or 98.6 per cent.; this gives an average incidence of this tapeworm in the southern states of 1.1 per cent. In the remaining 100 cases, the tapeworms most frequently present were the beef tapeworm (*Taenia saginata*) in 58 cases, and the rat tapeworm (*Hymenolepis diminuta*) in 32 cases; the pork tapeworm (*Taenia solium*) was found in 8 cases. As the appearance of the segments of the beef and pork tapeworms in the stools is familiar to many physicians, it is probable that specimens from such cases do not always reach the State laboratory, and thus laboratory reports do not always indicate the true incidence of infestations by these tapeworms. The 32 cases of rat tapeworm infestation were reported from five states. Keller in 1931 reported 8 such infestations in Tennessee; and the authors have found 20 cases in Georgia

since 1922. These findings suggest that rat tapeworm infestation may be more common than has been supposed. The intermediate hosts of the rat tapeworm are "a surprising range of meal infesting insects." Most human infestations are due to the ingestion of improperly cooked bread and other foodstuffs made with flour or meal infested with the infected intermediate hosts. If human infestation with this tapeworm occurs it indicates "the grossest unsanitary conditions." In this series there was one case of infestation with the fish tapeworm (possibly acquired in Finland); and one case of dog tapeworm in a child. The authors note that in view of the widespread distribution of the dog tapeworm in dogs and cats, and the close relationship often existing between these animals and their owners, especially children, "it is somewhat puzzling that more cases of human infestation with this worm are not reported."

Is Routine Examination and Certification of Food Handlers Worth While?

W. H. BEST (*American Journal of Public Health, 27:1003, October, 1937*) on the basis of the experience of New York City in the compulsory annual medical examination of food handlers, is convinced that the results obtained in the prevention of diseases are not commensurate with the expense entailed. In the examination of a group of 100,000 food handlers by the City Health Department, the only individuals discovered "who might be considered a health menace through food handling" were 2 typhoid carriers. With the exception of the enteric diseases, the possibility of transmitting disease by food handling "is rather remote." Communicable skin diseases, tuberculosis and the venereal diseases "are just not contracted that way." In the case of the enteric diseases there are effective methods that will give reasonable protection to the public from carriers of these diseases. These measures include: 1. Prompt reporting of communicable diseases, giving the occupation of the individual; if a food handler is suffering from such a disease he can be excluded from work and kept under observation until it is safe for him to return to work. 2. By thorough epidemiological investigation and follow-up of cases of

typhoid fever, infected food handlers should be discovered. On July 1, 1937, New York City had 727 typhoid fever carriers listed and under observation and control: of these 397 were discovered as the results of epidemiological investigations, only 35 as the result of food handler examinations. Of the 35 carriers found as the result of food handler examinations, 23 were found during the eleven year period of compulsory annual examinations of food handlers. Of the 397 carriers discovered by epidemiological investigations, 28 were food handlers, and of these 18 had been discovered by the epidemiological investigation during the period of compulsory annual examination of food handlers—apparently missed by such routine examinations. Routine examination of food handlers has been discontinued since September, 1934; but since that time there has been no increase, on the contrary a decrease, in the incidence of typhoid fever in New York City. 3. Exclusion and strict supervision of typhoid carriers found among food handlers. 4. Education of food handlers in regard to personal hygiene and hygienic methods of handling food. 5. Instruction of employer and employee to the effect that they are jointly responsible if any one with a communicable disease is found employed as a food handler.

Dust Hazard Among Foundrymen

L. H. OSMOND (*American Journal of Roentgenology, 38:122, July, 1937*) reports a roentgenological study of the lungs in men employed in a large foundry in Pittsburgh, Penn'a. In 686 men working where the examination of dust samples had indicated a harmful concentration of silica, 38, or 5.5 per cent, showed simple silicosis; 25, or 3.6 per cent, silicosis and infection; 26, or 3.8 per cent, active or incompletely arrested tuberculosis; 34 cases, or 4.9 per cent., arrested parenchymatosus tuberculosis of the adult type. The incidence of silicosis was definitely higher than that for the entire group in men working in the foundry sixteen years or over (19 per cent.) and still higher for those working twenty-one years or over (32.2 per cent.). The highest incidence of simple silicosis was found among the coremakers who worked in the highest concentration of dust, but the

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holders showed nearly as high an incidence, although working in a comparatively low concentration. Cranemen and iron foundry chippers showed a low incidence of simple silicosis, although working in a comparatively high dust concentration. In workers showing an early or moderate silicosis, there was little if any reduction in vital capacity or limitation of diaphragmatic motion. A diagnosis of silicosis was made in these cases only if there were generalized discrete nodular shadows in the lung fields. Unless there was a complicating infection, these nodules were small, suggesting that silicosis in foundrymen is different from that of granite cutters, sandblasters, and iron miners. With the use of efficient respirators the danger from simple silicosis should be *nil*; and the danger of superimposed tuberculosis would be reduced by removing infected cases and more careful selection of applicants for work.

The Health Hazard of a Group of Workers Exposed to Alumina Dust

C. L. SUTHERLAND and his associates of the Medical Board for Silicosis of Great Britain (*Journal of Industrial Hygiene*, 19:312, September, 1937) report a study of the health of a group of workers exposed to considerable concentrations of alumina dust in the manufacture of pure aluminum, with particular attention to the pulmonary conditions. This investigation was undertaken because alumina has been proposed as a substitute for fine flint in the process of biscuit firing in the manufacture of china. There has been a serious mortality from silicosis among workers in the china biscuit process in England, which was found to be related to the flint used in the firing, and for this reason a substitute was sought. When it was found that alumina was a satisfactory substitute from the technical standpoint, it became necessary to investigate the possible health hazards from this substitute. A systematic study of 49 workers exposed to alumina dust showed no evidence of any harmful effect of this dust on the urinary or gastro-intestinal tract, on the blood pressure, or on the teeth. A special study of the pulmonary conditions in these workers was made. Apart from a few cases in which there

was some definite disease, such as asthma, recent acute bronchitis or chronic bronchitis (not attributed to working conditions), these workers were remarkably free from pulmonary symptoms, such as dyspnea, cough, spitting, or pain in the chest. Careful roentgenological examination showed no evidence of the "stippling or nodulation" in the lung fields characteristic of pneumoconiosis.

The Cultural Method for Detecting Residual Gonococcal Infection

R. J. GIBBONS (*Canadian Public Health Journal*, 28:450, September, 1937) describes a method for the culture of the gonococcus which he has found of special value for detecting gonococcal infections at the Provincial Board of Health Clinic in Vancouver. This method was used chiefly for routine tests on patients clinically cured to determine whether or not they could be discharged from the Clinic as free from infection. It was also used for the diagnosis of some new "suspect" cases in which the smear examinations were negative. In the survey reported, 521 specimens were cultured from 348 cases, 186 males and 162 females. Positive cultures were obtained in 114 cases, or 21.9 per cent, while smears were positive in only 26 of these cases, or 5 per cent. Thus 75 per cent. of these cases in which cultures were positive gave negative smears. In only 2 instances was the culture negative and the smear positive; in 3 cases the culture was negative and the smear suspicious. The best results were obtained when specimens were cultured within a short interval after being taken. The cultural method, which is more costly and time-consuming than the smear method, should be used only when smears are negative; but in such cases it is "invaluable" in discovering residual or latent gonococcal infection.

⊕ Ophthalmology ⊕

Bacterial Factors in Chronic Catarrhal Conjunctivitis

P. THYGESEN (*Archives of Ophthalmology*, 18:363, September, 1937) in a

study of 399 cases of chronic catarrhal conjunctivitis at the University Hospitals, University of Iowa, and 244 cases at the Vanderbilt Clinic, New York City, found that staphylococcus was the most common organism of etiological significance in both groups. The conjunctivitis due to staphylococcus showed the following clinical characteristics: A protracted course, resistance to local therapy, and frequency of concomitant blepharitis and ulceration of the margin of the cornea. Pathogenic staphylococci may also be found secondarily complicating specific types of conjunctivitis, especially trachoma and phlyctenular conjunctivitis. Studies of the pathogenic staphylococci in these cases of conjunctivitis showed that, like the diplobacillus of Morax and Oxenfeld, they do not invade the conjunctival epithelium, but multiply in the conjunctival secretion or on dead cells. The conjunctivitis is produced by the action of the toxin liberated by these organisms; most of the strains of pathogenic staphylococci found in these cases of catarrhal conjunctivitis, and producing the specific toxin that caused the conjunctivitis, were of the *aureus* type; a few strains were of the *albus* type. This conjunctivitis-producing toxin is usually produced simultaneously with the hemolytic toxin, but may be distinct from it. Of the various tests used for estimating the toxicity of staphylococci, the coagulase test gave the closest correlation with the production of the conjunctivitis-producing toxin.

COMMENT

The number of useless and meaningless reports which are returned to the clinician after bacteriological study of conjunctival secretions is really astonishing. Cultures are little better than smears as the time interval is so great between collection of secretion and report that the clinical signs are so much altered as to require restudy of the flora. It is thus gratifying to have the above reports from a master hand.

In spite of much progress in our methods of combating such infections, we revert again and again to silver nitrate and zinc salts as productive of better results than newly heralded remedies. The advent of prontylin (by mouth) makes one halt again to consider the possibility of a real step forward in the treatment of the acute and probably chronic conjunctivitis.

J.N.E.

Vision in Pernicious Anemia

E. JACKSON (*American Journal of Ophthalmology, 20:1046, October, 1937*) notes that in 1882, he saw a patient with obscure nervous symptoms that suggested the possibility of brain tumor. Ophthalmological examination including examination of the visual fields, however, did not indicate a gross cerebral lesion. The ophthalmoscope showed a pale fundus and changes in the retinal vessels indicative of anemia. The optic discs were hazy, slightly red and swollen, but there was "no evidence of choking." As the patient was watched and blood counts made, it became evident that she had pernicious anemia, from which she died. The author has noted no case with similar ophthalmoscopic findings in pernicious anemia in his own practice nor in the literature until recently, when a report of 2 cases of "optic atrophy" in pernicious anemia by Cohen appeared in the *Lancet* (See abstract in *MEDICAL TIMES*, March, 1937, p. 150). Following Cohen's report, C. R. Box of London (*Lancet*, Nov. 28, 1936,) also reported a case of pernicious anemia with marked diminution of vision that improved under liver treatment. Since that time the author has observed a case of pernicious anemia with diminution of vision; vision in the left eye was restored to normal under treatment for the anemia. The right disc was pale and deeply cupped, but this he considers a congenital defect. He is of the opinion that such cases of loss of vision in pernicious anemia are not due to optic atrophy, since vision improves under liver treatment, but that the changes in vision are due to "the great impairment of general nutrition characteristic of pernicious anemia" which damages the macular region of the retina. It may be compared to toxic amblyopia from alcohol or tobacco. It is important to realize, however, that amblyopia may be an early symptom of pernicious anemia, and that it is "quite amenable" to the modern therapy of this disease.

COMMENT

Though the average ophthalmologist does not meet with pernicious anemia in daily practice, he does meet other forms. Hypochromic anemia (the old chlorosis) is met with nearly daily among eye patients. Their

chief complaint is usually "Tired feeling in the eyes."

Much experimental evidence—particularly with dogs—has tended to show that indole (Rhodes, C.P.—Effect of Indole on Hematopoiesis in Dogs Fed Deficient Diets—*Proc. Soc. Exper. Biol. & Med.* 36:652 (June) 1937) from the gastro-intestinal tract gives rise to this complex. The ophthalmologist will find that

- 1—premature graying of the hair,
- 2—poor color index,
- 3—brittle finger nails,
- 4—chronic constipation,
- 5—low blood pressure, and
- 6—a poor endurance for the day's work, are usual findings, though one or two points may be absent.

The care of the refractive error is not complete with the prescription of glasses. The ophthalmologist must supplement it by consultation with the internist or at least iron-liver-vitamin therapy and correction of the constipation.

J.N.E.

Pathology of Angioid Streaks In the Fundus Oculi

W. L. BENEDICT (*Journal of the American Medical Association*, 109:473, Aug. 14, 1937) notes that the first case of angioid streaks in the fundus oculi was reported by Doyne in 1889. Since that time many cases have been reported; in most cases such angioid streaks have been associated with pathological changes in the choroid and hemorrhages in the retina; but in a few cases no hemorrhages have been found on repeated examinations. The author has had a patient under observation for eight years and has never seen retinal hemorrhages at any examination. There are always some pathological changes in the choroid, but vision is not seriously impaired unless the macular region is involved. Pathological examination has not been made in these cases, as the condition does not require enucleation of the eye. In one of the author's cases, however, acute glaucoma developed in an eye in which angioid streaks were present, and the eye was enucleated. After fixation of the eye in formaldehyde, the streaks could be clearly demonstrated with a Zeiss binocular magnifier and a Shahan lamp. But microscopic examination of the sections failed to show any pathological changes that could be identified as angioid streaks. The retinal structures

appeared practically normal and there was no retinal hemorrhage. The choroid showed perivascular lymphatic infiltration around many of its vessels and deposits of pigment around vessels and nerves; there were no sclerotic changes in the choroidal vessels. The findings did not support any of the theories that have been advanced in regard to the origin of the angioid streaks.

COMMENT

Streaks appearing in the eyegrounds which resemble blood vessels are seen more frequently than the literature would indicate. Every few years some worker adds a point or two, but we are still much in the dark. These streaks may be very similar in arrangement to the retinal vessel system, or may look entirely different. They may parallel the course of arteries or may run in entirely different directions. Some seem deep; others superficial. It is not uncommon to see angioid streaks in the course of the rise and fall of retinal detachments.

J.N.E.

Treatment of Caustic Burns of the Eye

W. B. HUBBARD (*Archives of Ophthalmology*, 18:263, August, 1937) notes that chemical burns of the eye are of frequent occurrence, but the study of the best methods of treatment has been largely neglected. In a previous experimental study of caustic burns he found that the best method of treatment was to irrigate the eye with water rather than attempt neutralization. The great importance of the time that elapsed before a "first aid" treatment was also demonstrated; in many instances irreparable damage would be done to the eye before a proper neutralizing solution could be obtained. In further experiments with rabbits, in some of which burns of both eyes were produced with an acid (sulphuric acid) and in others with an alkali (sodium hydroxide), one eye was irrigated with tap water, the other with a weak neutralizing fluid. For the sulphuric acid burns the neutralizing fluid employed was a 2 per cent. solution of sodium bicarbonate; and for the sodium hydroxide burns, a 2 per cent. solution of acetic acid. In from 80 to 100 per cent. of the acid burns, the results were definitely worse in the eye treated with the neutralizing solution than in the eye treated with tap water. In 75 per cent of the alkali burns, the results were

definitely better in the eye treated with the neutralizing solution. On the basis of these findings the author advises that acid burns of the eye should be treated immediately by irrigation with water and not with a neutralizing (alkaline) fluid. Alkali burns, however, should be treated by irrigation with a weak acid solution if possible. If this is not practicable, irrigation with water should be employed and a weak acid instilled as soon as possible. Further experimental studies, using other caustic substances, are necessary.

The Stereoscope in Theory And Practice

E. KRIMSKY (*British Journal of Ophthalmology*, 21:161, April, 1937) discusses the theory of the stereoscope, and the application of the theory to the practical use of the instrument in ophthalmology. He states that a fixed stereogram is an unsatisfactory method for determining the fusion status; a split stereogram that can be shifted to correspond to changing positions of visual axes with variable accommodations offers the only practical method of stereoscopic study. He describes a precision stereoscope designed by himself with which the examiner can determine "at a glance" the amount of convergence or divergence at any desired accommodative range. With this instrument it is possible to diagnose and classify the type and degree of muscle anomaly; to determine the range of fusion, the amount of phoria and the progress in terms of prismatic vergence. The stereoscope can also be used for orthoptic training. The distinguishing features of this stereoscope are: 1. Viewing lenses of variable separation and of known focal length; 2. Movable calibrated rod. 3. Viewing boxes calibrated to record the amount of separation of split pictures. 4. Tables to enable the examiner to "translate" these vergence readings readily.

COMMENT

The literature of the last ten years has been flooded with papers advocating various types of glorified stereoscopes. No doubt, many of these are more adaptable to various types of imbalance. Few carefully planned and controlled studies have resulted from

their use, however. Any instrument devised to study muscle imbalance should supply direct data on the particular muscle involved; it is not enough to record this or that amount of phoria. Evidence as to the level and nature of the lesion is essential also. Time alone will determine the place of the stereoscope as a diagnostic aid.

J.N.E.

Latent Syphilis in Senile Cataract

E. PUSCARIN (*Annales d'oculistique*, 174:596, September, 1937) reports that in 1,357 cases in which the operation for senile cataract was done in 1919 to 1936, routine Wassermann tests were positive in 89 cases or 14.1 per cent. Yet in these cases with a positive serological reaction there was no clinical manifestation of syphilis. In his entire series of cases postoperative iritis developed in only 43 cases, and was of a severe type in only 2 of these. Yet in 17 of these 43 cases the Wassermann reaction was positive. Thus postoperative iritis after the cataract operation developed in 17 out of 89 cases with a positive Wassermann reaction (latent syphilis) or 19 per cent, while it developed in 20 out of 539 cases with a negative reaction, or 3.74 per cent. Such a marked difference in the incidence of this postoperative complication indicates, in the author's opinion, that the tissues of the eye have been injured and rendered more sensitive to operative trauma by the syphilitic infection.

COMMENT

Postoperative iritis after cataract operations is a big subject not to be covered by consideration of a single etiological factor. Puscarin's study certainly seems worth considering, however, because of the large number of cases, and the reliability of the Wassermann test. Other causes commonly cited are focal infections, gastro-intestinal toxins, sensitization to lens material, focal toxic reaction to inactive tuberculous foci elsewhere in the body, and simple traumatic damage to the vascular pigmented mass of the uvea.

J.N.E.

Medical Book News

• All books for review and communications concerning Book News should be addressed to the Editor of this department, 1313 Bedford Avenue, Brooklyn, New York.

Edited by Alfred E. Shipley, M.D., Dr. P.H.

An Outstanding Work for the Laryngologist great aid to the general practitioner.
ROBERT L. MOORHEAD.

THE LARYNX AND ITS DISEASES. By Chevalier Jackson, M.D., and Chevalier L. Jackson, M.D. Philadelphia, W. B. Saunders Company, [c. 1937]. 555 pages, illustrated. 8vo. Cloth, \$8.00.

This is probably the most complete work that we have on the subject. It is based on the enormous clinical experience of the authors and, while not a large volume, it is so condensed and so clearly written that added words would seem superfluous. The volume deals in detail with various diseases of the larynx, followed by a discussion of tumors, both benign and malignant, and finally the various operative procedures are discussed. The work is profusely illustrated by sketches made direct from the patients, and the large number of colored plates add enormously to the understanding of laryngeal appearances.

This book should be indispensable to the specialist and of



Classical Quotations

- When the distending pressure of the blood preponderates over the power of the ventricle, its contents, from not being duly expelled, constitute an obstacle to the transmission of the auricular blood. Hence the auricle becomes over-distended, and the obstruction may be propagated backwards through the lungs to the right side of the heart, and there occasion the same series of phenomena.

JAMES HOPE. *A Treatise on the Diseases of the Heart.* 1842.

An Excellent Blood Picture Work

ATLAS OF HEMATOLOGY. By Edwin E. Osgood, M.D., and Clarice M. Ashworth. San Francisco, J. W. Stacey, Inc., [c. 1937]. 255 pages, illustrated. 4to. Cloth, \$10.00.

The strikingly superior drawings by Miss Ashworth and the magnificent color reproductions alone might establish this as the foremost volume of its type. Individual cell drawings in exact scale magnification ($\times 2500$) appear in such natural detail that they seem lifted directly from a perfectly stained smear. Their value for identification of ambiguous cells is inestimable and the numbering in series would permit, as the authors indicate, direct reference to them in published articles.

Dr. Osgood's selection of format and technical construction is notable, as is the manner in which he has adhered to morphologic hematology. Explanation concerning items such as heterophile

agglutination or blood grouping is not detailed, although any such needed information is properly placed. Normal or morbid morphology of the various hemic series is concisely and completely described cell by cell. Blood disease entities are fully elaborated and also the effect of infectious, allergic, parasitic, and other diseases in altering the blood picture. The tables, ranging through nomenclatures and differential diagnoses, are as worthy of particular mention as the illustrations. It is difficult to avoid superlative terms in describing this authoritative standard, beautiful yet outstandingly practical work. Once inspected, no practitioner, specialist, or laboratory worker can avoid retaining the volume.

IRVING M. DERBY.

A Good Medical Story

THE CITADEL. By A. J. Cronin. Boston, Little, Brown and Company, Inc. 1937. 401 pages. 8vo. Cloth, \$2.50.

Archibald Joseph Cronin, M.D. (Glasgow), M.R.C.P. (London), Dr.P.H. (London), practiced medicine in the west end of London until 1930. Then he began that remarkable series of novels—*Hatter's Castle* (1931), *Three Loves* (1932), *Grand Canary* (1933) and *The Stars Look Down* (1935)—which took him out of his medical career into an established reputation as a front rank novelist; not entirely out, in a sense, since *The Citadel* is a story of medicine and a medical man; in fact, we suspect that the story is largely autobiographical; for one thing, Cronin's degrees are like those of his hero (won with "honors" in both cases), both married intellectual women (Manson, in the book, an erstwhile school-teacher who aided him to prepare scholastically for his M.R.C.P., and Cronin, in real life, a lady who can boast of an M. B. and Ch.B.), and both may easily be guessed to harbor the same charmingly heretical views with respect to some present methods of practice and very sincere devotion to scientific ideals.

The Citadel is the kind of a story that you had better not start to read at midnight, else you will probably find yourself unable to turn it down, turn off the light, and turn over. And yet this is not to say, by any means, that it is great literature. It is simply a rattling good medical story (what a rare thing, strange to say)

which will give a physician a good many terrible jolts (according to how smug he is) as well as many pleasurable moments, and which will leave the vast audience which makes best sellers possible in open-mouthed oblivion to all else. *The Citadel* obviously aims for Hollywood. When Dr. Manson starts practice in a Welsh mining village and encounters an epidemic of typhoid he and a colleague dynamite at night the old sewer which leaks into the wells of the miners' homes, which compels the mossback politicians to rebuild it. Then there is an episode in another mining town to which Dr. Manson has moved which is natural grist for the movie mill, namely, the freeing of a miner whose arm has been pinned down by a cave-in through a hurried amputation, the roof of the mine collapsing immediately after the completion of the job and the escape of the participants in the scene. There is also a dramatic hearing before a board of the pious Welsh miners' representatives when Dr. Manson is accused of vivisecting guinea pigs (Dr. Manson is doing original work on the silicon factor in the miners' pulmonary pathology), in the course of which the doctor makes the point that the miners themselves are really doing much the same thing when they take canaries and white mice into the mines for the detection of black damp (not a bad means of enlightenment at times—the movies). Finally, there is a trial scene before the General Medical Council with Dr. Manson as the defendant against a charge of aiding an irregular (American, of course) practitioner perform a pneumothorax, out of which the doctor comes unscathed. We can see Paul Muni right now as Dr. Manson and Helen Hayes as the doctor's invariably wise consort, with Dr. Cronin in the background counting the swag, as Dr. Manson did in London when for a time he succumbed to the medical "system" in its most intense form.

The Citadel meets the test of a novel—it relates experience that could be real and is purposeful in thought, though the author does not (seemingly) intrude his own ideas. The alleged and implied shortcomings of medical practice are blisteringly exposed. We have here a specimen of bookmaking which will arouse equal

degrees of indignation and admiration—the trick technic of which highly remunerative but difficult specialty Dr. Cronin understands extremely well.

ARTHUR C. JACOBSON.

Encephalography

THE NORMAL ENCEPHALGRAM. By Leo M. Davidoff, M.D., and Cornelius G. Dyke, M.D. Philadelphia: Lea & Febiger, [c. 1937]. 224 pages, illustrated. 8vo. Cloth, \$5.50.

The present volume is based upon an experience gained chiefly at the New York Neurological Institute in the study of over four thousand encephalograms.

A short but informative history of the discovery of, and important developments in cerebral aerography introduces the book. There is next presented a critical consideration of various techniques that have been employed in encephalography. Each of these is evaluated, and particular emphasis is laid upon the technique of incomplete replacement of available cerebrospinal fluid at present utilized at the Neurological Institute. The body of the work devotes itself to a systematic correlation of the superficial and deep structures of the brain with the several gas shadows and areas of density demonstrable on the roentgen films after the introduction of air into the spinal subarachnoid space. Due consideration is given to the rather extensive literature relative to this diagnostic procedure.

The work is characterized by its thorough-going attention to details and their interpretation. It is certain to prove of genuine value to the neurologist, neurological surgeon and roentgenologist.

RUSSEL MEYERS.

A Well-Known English Yearbook

THE INTERNATIONAL MEDICAL ANNUAL, A Year Book of Treatment and Practitioner's Index. Editors: H. Letheby Tidy, M.D., and A. Rendle Short, M.D. Baltimore: William Wood and Company, [c. 1937]. 605 pages, illustrated. 8vo. Cloth, \$6.00.

This volume follows the same plan of previous years, and contains much alphabetically arranged information and many good illustrations. Such recent developments as the use of prontosil (sulfanilamid), snake venom, novurit (used more in England and similar to mercupurin), and benzadrine are described.

MEDICAL TIMES • DECEMBER, 1937

Medicine, surgery, anesthesia, gynecology, and radiology all receive attention. In general, each article covers recent literature of the subject, of which it treats quite fully, with a bibliography appended. The six hundred closely printed but clear pages furnish a wealth of new material conveniently arranged.

WILLIAM E. MCCOLLOM.

A New Edition of a Standard Neurology

THE DIAGNOSIS OF NERVOUS DISEASES. By Sir James Purves-Stewart, K.C.M.G. Eighth edition. Baltimore: William Wood & Company, [c. 1937]. 842 pages, illustrated. 8vo. Cloth, \$10.00.

This well-known authoritative textbook is now in its eighth edition, a fact which speaks for itself as to the reception and importance of the work. The author has brought the contents of this edition up to date, so that the significant contributions to everyday neurological practice and diagnostic significance are enhanced by new information.

Although the main structure of the book remains the same, many portions of the text have been rewritten, and many new illustrations have been added.

It would be difficult to find a textbook of neurology which abounds in such crisp and lucid English, reinforced by numerous concrete examples from everyday neurological practice.

There is little to criticize and, on the other hand, much to praise in this outstanding standard text. Mention may be made of the overemphasis upon neurological basis for all types of psychogenic disorders. Although the author respects the integration concept, it may be argued that there is still a place for disturbances in ideational content to proceed on a nonphysical determined pathology.

Every student and practitioner of medicine, and particularly the specialist in psychiatry and neurology, will wish to have his library kept up to date by this recent edition.

FREDERICK L. PATRY.

Practical Psychology

WHY WE DO IT? An Elementary Discussion of Human Conduct and Related Physiology. By Edward C. Mason, M.D. St. Louis: The C. V. Mosby Co., [c. 1937]. 177 pages. 8vo. Cloth, \$1.50.

The author of this book is professor of physiology at the University of Oklahoma School of Medicine. As a physiologist, he feels that he is perfectly within bounds of his profession to discuss human behavior, for it is proper for a physiologist to discuss subjects such as kidney function, liver function, etc. Therefore, the function of the human being as a whole should certainly be considered within the field of the physiologist.

Dr. Mason dedicated this book to parents and teachers in the interests of better citizenship. It is a delightful book, brief but thorough in presenting the various aspects of human behavior. It is highly recommended because of its simplicity and its excellent presentation of the entire subject.

This book should find favor with all who are interested in the basic factors involved in human behavior.

IRVING J. SANDS.

Three Popular Books on Syphilis

SHADOW ON THE LAND. *SYPHILIS*. By Thomas Parran, M.D. New York, Reynal & Hitchcock, [c. 1937]. 309 pages, illustrated. 8vo. Cloth, \$2.50.

Since the barrier against calling venereal diseases by their proper names has been removed, the campaign against these scourges has advanced rapidly. For many years, Dr. Parran has been in the foreground of the fight against this particular group of infections, and he now presents a book on Syphilis which the average citizen can read and comprehend; in fact, it gives information and data which physicians themselves will find valuable.

Dr. Parran compares the eradication programs of the Scandinavian countries, Great Britain and Continental Europe with the efforts just being organized in our own United States. Having stated the problem to be faced, he suggests ways and means for action.

As physicians necessarily must play an important part in the control of syphilis as a community problem, the book is recommended to them for a rapid review of the job to be done.

ALFRED E. SHIPLEY.

TEN MILLION AMERICANS HAVE IT. By S. William Becker, M.D. Philadelphia, J. B. Lippincott Co., [c. 1937]. 220 pages, illustrated. 12mo. Cloth, \$1.35.

SYPHILIS. The Next Great Plague To Go. By Morris Fishbein, M.D. Philadelphia, David McKay Co., [c. 1937]. 70 pages, illustrated. 12mo. Cloth, \$1.00.

Here are two books that the physician can suggest to his inquiring patients. Coupled with Dr. Parran's *Shadow on the Land*, these are books that the physician should read as preparation for his own personal participation in the most effective phase of health education—intimate, personal contact of doctor and client.

Ten Million Americans Have It tells the story with perhaps too much detail and, in the opinion of one lay reader, too much repetition.

Dr. Fishbein's book is easy to read—it completely covers the story to be told and is not too full of detail. It is to be regretted that the photographic illustrations were used. They make it too easy for the layman to mistake the conditions illustrated for other conditions that he may observe in friends and neighbors. One is surprised to find under the caption, EARLY SYMPTOMS, a paragraph devoted to some of the manifestations of neuro-syphilis—it is obviously a mistake in make-up. It is to be hoped that we have about reached the end of the outpouring of films on syphilis for the layman. It is also to be hoped that in the future the entire syphilis campaign will not be dated as of 1936, which was not the first year in which the word syphilis was used in the public prints nor the first year in which it was permitted as a word to be spoken over the radio.

ALEC N. THOMSON.

Applied Mental Hygiene

MENTAL HEALTH, ITS PRINCIPLES AND PRACTICE WITH EMPHASIS ON THE TREATMENT OF MENTAL DEVIATIONS. By Frank E. Howard, Ph.D., and Frederick L. Patry, M.D. New York, Harper & Brothers, [c. 1935]. 551 pages. 8vo. Cloth, \$3.50.

The ideal aim of mental hygiene is the scientific promotion of mental health. In the attainment of this, knowledge of the development and organization of the healthy mind is initially requisite for subjective as well as objective appreciation of deviations, whether unsound or wholesome. This book fully elaborates these elements, and undertakes the direction of practical efforts in reconstruction of the aberrant mind and also in cultivation of the healthy.

MEDICAL TIMES • DECEMBER, 1937

The educational and practical experience of the authors is well reflected in the technical construction of the volume and its included wealth of illustrative material. Its greater usefulness, perhaps, will be its service as a didactic text in applied mental hygiene, particularly for those educators and workers having to do with school children. Avoidance of technical language, as far as possible, and the addition of a glossary add much to its value for those not necessarily trained in psychology and psychiatry. The outlined course of collateral reading is an exceptional educational advantage.

As a textbook it should be a standard. For outline study and for reference, it is modernly unique. It is highly recommended for every worker in the field of applied mental hygiene.

IRVING M. DERBY.

An Atlas for the Gastro-Enterologist

DIE GASTROSKOPIE. Lehrbuch und Atlas. By Prof. Dr. Kurt Gutzeit and Doz. Dr. Heinrich Teitge. Berlin & Wien, Urban & Schwarzenberg, [c. 1937]. 342 pages, illustrated. 4to. Cloth, RM. 56.

This volume is a splendid contribution to the field of Gastroscopy. After discussing methods and technic used in the introduction of various instruments, and after reviewing the more recent gastroscopic instruments, the authors describe the technic employed in examination of the stomach, and then go on to explain in detail gastric findings in various types of gastric disease.

The clinical material is excellent, and the book is profusely illustrated with more than two hundred colored photographs of mucous membrane studies obtained through the gastroscope. In many instances these photographs are compared with the X-ray picture of the same case.

The colored photographs are extremely instructive, and from a technical point of view they are superlatively done. These photographs have been pasted into the book, probably by hand, and they are an expression of the meticulous manner in which the entire volume has been produced.

The authors and the publishers are to be congratulated upon this splendid volume which should find a demand amongst those interested in this field of work.

IRVING GRAY.

Hygiene for the Climacteric

WOMAN'S PRIME OF LIFE. Making the Most of Maturity. By Isabel E. Hutton, M.D. New York, Emerson Books, Inc., [c. 1937]. 150 pages. 12mo. Cloth, \$2.00.

This is a small book written in simple style for the lay public, in which are considered many of the interesting phases of the climacteric. It even includes a chapter on advice to husbands.

The book's greatest value lies in the convincing manner in which the author explodes the numerous false traditions associated with the menopause.

Unfortunately, occasional errors appear in relation to the clinical aspect of her text. "Diathermy being advocated as a method of treatment for menopausal menorrhagia—and the period of greatest fertility being stated as the first three days post-menstrual". Despite these occasional discrepancies, the book is well worth reading.

JAMES L. O'LEARY.

Cancer Information for the Public

CANCER: THE GREAT DARKNESS. By the Editors of "Fortune." Garden City, Doubleday, Doran & Company, Inc., [c. 1937]. 80 pages, illustrated. 12mo. Paper, \$1.00.

The editors of "Fortune" presented to their readers in a series of articles, (now published in book form), a review of cancer. Their desire is to stimulate cooperative public interest in furthering cancer research. In the opening and closing chapters, they appeal directly for financial support.

The history of cancer is briefly sketched, and its increasing frequency graphically shown. Normal cell structure is clearly pictured, so that the structure of malignant neoplasms may more readily be understood.

The present view of the nature of cancer is discussed, and the theories of the relationship of contagion, heredity and chronic irritation are clearly presented.

The field of treatment is covered by stressing the importance of early surgery and radiation, and by vigorously condemning the practices of quacks.

HARRY MANDELBAUM.

Basic Obstetric Principles

MATERNAL CARE. The Principles of Antepartum, Intrapartum, and Postpartum Care for

the Practitioner of Obstetrics. Approved by the American Committee on Maternal Welfare, Inc. Dr. F. L. Adair, Editor. Chicago, University of Chicago Press, [c. 1937]. 93 pages. 12mo. Cloth, \$1.00.

This little book sets forth "The Principles of Antepartum, Intrapartum, and Postpartum Care for the Practitioner of Obstetrics". Published with the full approval of the important national societies which make up the American Committee on Maternal Welfare, it is, of course, highly authoritative, and so a very significant publication.

Intended primarily for those who deliver women outside the hospital, and the nurses who work with them, it might very well be read by everyone. "It is possible in normal cases . . . to give a woman good obstetric attention in her home. Even operative work may be done . . . with a considerable degree of safety". Episiotomy is not recommended in home deliveries. The conditions which should surround forceps delivery are clearly stated.

As a gentle criticism of a fine book, which, without any equivocation whatever, sets a standard, it seems to the reviewer that the history and labor record forms are in unnecessary detail for practical obstetricians.

CHARLES A. GORDON.

Russian Medicine in the Clio Medica Series

RUSSIAN MEDICINE. By W. Horsley Gantt, M.D. (Clio Medica.) New York, Paul B. Hoeber, Inc., [c. 1937]. 214 pages, illustrated. 16mo. Cloth, \$2.50.

Russian Medicine by Dr. W. Horsley Gantt is a delineation of the development of medicine in that country from the earliest times to the present. The author traces this development through four stages: (1) Primitive medicine, (2) The Period of Peter the Great and Catherine the second, (3) The Rise of Independent Russian Medicine, and (4) Soviet Medicine and Socialization.

Medicine during the primitive period was steeped in mythology. Medical therapy consisted of charms, amulets, and conjurations, although there was a wide application of the hot bath in the treatment of various internal ailments. The monks, who made up the literate class, were responsible for the translation of Greek medical works and the introduction of various herb potions.

Peter the Great may be considered the father of Russian medicine. He encouraged foreign medical men to visit the country and was the first to organize hospitals and medical schools. Courses in midwifery were developed during his regime. Catherine the second established the Department of Social Welfare, which was in charge of the public schools, hospitals, and prisons, and was responsible for introducing inoculation for smallpox. This was a period of progress in sanitation and institutional care.

It was during the following period, under the leadership of Pirogov, Metchnikov, Botkin, and Pavlov, that independent Russian medicine came into its own. A number of medical schools were established and the library of the Military Medical Academy in St. Petersburg, which ranks with the Surgeon General's Library in Washington and the British Museum Library, was developed. The progress made in the field of scientific medicine was pronounced, and further advances in public health and sanitation were instituted.

With the advent of the Soviet regime, an adequate system of public health has been established. Medical centers have been developed in the factory districts, and the government takes complete care of the worker's health. Great enthusiasm for research in science, particularly in experimental medicine, psychology, and genetics, has been stimulated, and all medicine has been given a prophylactic character.

Short biographical sketches of the more important Russian medical men enhance the value of this historical study.

WILLIAM RACHLIN.

Concerning the Canning of Foods

NUTRITIVE ASPECTS OF CANNED FOODS. A bibliography of scientific reports, and helpful tables of food data. New York, American Can Company, [c. 1937]. 110 pages, illustrated. 8vo. Cloth.

"This book summarizes briefly a complete array of facts, never before assembled in one place, about tin containers, canning procedures and canned foods—for your convenient reference."

The subjects are divided under the following headings: Preservation of foods, Human Dietary Requirements, Nutritional Aspects of Canned Foods,

Public Health Considerations, Can Manufacture and Canning Procedure.

There is a very well arranged appendix of reference tables, food, mineral content, and vitamin values.

The book is well written, and the subject matter is well chosen.

This volume is a reference work, and is of special value to students in the field of nutrition.

PAUL C. ESCHWEILER.

Another Text for the Orthopaedist

HANDBOOK OF ORTHOPAEDIC SURGERY.
By Alfred R. Shands, Jr., M.D. St. Louis, The
C. V. Mosby Company, [c. 1937]. 593 pages,
illustrated. 8vo. Cloth. \$5.00.

The author, Alfred R. Shands, Associate Professor of Surgery at Duke University, has made a very definite contribution in the form of an up-to-date textbook on Orthopaedic Surgery. The usual subjects are covered in twenty-four chapters, comprising five hundred pages of subject matter. The text is clear and concise, the illustrations are particularly noteworthy, and an appended bibliography makes for easy reference to the original sources which the author states he freely drew upon.

The reviewer believes that this handbook with its bibliography is among the most satisfactory volumes on ready reference to Orthopedic subjects that have been published. The volume will have a particular appeal to those interested in this specialty, but it should be an excellent textbook for the undergraduate student.

DONALD E. MCKENNA.

Latest Edition of DeLee for Nurses

OBSTETRICS FOR NURSES. By Joseph B. DeLee, M.D., and Mabel C. Carmon, R.N. Eleventh edition, revised and reset. Philadelphia, W. B. Saunders Company, [c. 1937]. 659 pages, illustrated. 12mo. Cloth, \$3.00.

This is the eleventh edition of an important book which was first published thirty-three years ago. The prominence and long experience of its senior author guarantees the soundness of its teaching, and his easy style makes it fascinating reading. More practical than ever, thoroughly up to date. DeLee's collaborator.

Miss Carmon, who is instructor in the birth rooms at the Chicago Lying-In, has considerably increased the value of the book for nurses.

Very well illustrated with much new material, an excellent glossary and review questions at the end of each chapter, it is an admirable presentation of the subject of obstetric nursing. Physicians might well read this book too. The reviewer enjoyed it thoroughly, and recommends it without reservation.

CHARLES A. GORDON.

Chemical Research in Cardiology

THE CARDIAC GLYCOSIDES. A series of three lectures delivered in the College of the Pharmaceutical Society of Great Britain under the auspices of the University of London. By Professor Arthur Stoll, M.D., New York, Sandoz Chemical Works, Inc. [c. 1937]. 80 pages. illustrated. 4to. Cloth.

This is a study, mainly in the field of chemical research, to help in the identification and practical application of the various cardiac glycosides. The first lecture deals with the importance of sugars and especially of the glycosides, which are combinations of sugar with substances belonging to other classes of chemical compounds. The different classes of glycosides are described, particularly the cardiac glycosides of *digitalis purpurea*, *digitalis lanata* and of the stramonthins.

The second lecture describes the squalane glycosides and the structure of aglucones (organic compounds with which a carbohydrate is combined). Scillaren A especially, has been intensively investigated. It is said to fulfill all the requirements of a cardiotonic of the digitalis type, and to produce a copious diuresis due to its direct action on the renal epithelium and indirectly to its action on the heart whereby renal circulation is improved.

The third lecture considers the genuine digitalis glycosides as isolated in a chemically pure state, there being a definite chemical discrepancy between the known cardiac glycosides and the genuine compounds.

WILLIAM E. MCCOLLOM

You may obtain any of the books reviewed in this department by sending your remittance of the published price to Book Department of the MEDICAL TIMES, 95 Nassau Street, New York, N. Y.

BOOKS RECEIVED

Books received for review are promptly acknowledged in this column; we assume no other obligation in return for the courtesy of those sending us the same. In most cases, review notes will be promptly published shortly after acknowledgment of receipt has been made in this column.

THE 1937 YEAR BOOK OF RADIOLOGY. Diagnosis edited by Charles A. Waters, M.D. and Therapeutics edited by Ira I. Kaplan, M.D. Chicago, The Year Book Publishers, Inc., [c. 1937]. 503 pages, illustrated. 8vo. Cloth, \$4.50.

EXTERNAL DISEASES OF THE EYE. By Donald T. Atkinson, M. D. Second edition, thoroughly revised. Philadelphia, Lea & Febiger, [c. 1937]. 718 pages, illustrated. 8vo. Cloth \$8.00.

ALLERGY. Its Practical Application. By J. A. Rudolph, M. D. Philadelphia, Dorrance and Company, [c. 1937]. 224 pages. 8vo. Cloth, \$3.00.

PERSONALITY AND THE CULTURAL PATTERN. By James S. Plant, M. D. New York, The Commonwealth Fund, [c. 1937]. 432 pages. 8vo. Cloth, \$2.50.

CHILDREN HANDICAPPED BY CEREBRAL PALSY. Psychological Factors in Management. By Elizabeth E. Lord, Ph.D. with a medical explanation by Bronson Crothers, M.D. New York, The Commonwealth Fund, [c. 1937]. 105 pages, illustrated. 8vo. Cloth, \$1.25.

BIOLOGICAL AND CLINICAL CHEMISTRY. By Matthew Steel, Ph.D. Philadelphia, Lea & Febiger, [c. 1937]. 770 pages, illustrated. 8vo. Cloth, \$8.00.

POST-GRADUATE SURGERY. Edited by Rodney Maingot, F.R.C.S. Volume III. New York, D. Appleton-Century Company, Inc., [c. 1937]. Pages 3575 to 5584, illustrated. 4to. Cloth, \$45.00 set of three volumes.

THE BUSINESS SIDE OF MEDICAL PRACTICE. By Theodore Wiprud. Philadelphia, W. B. Saunders Company, [c. 1937]. 177 pages, illustrated. 8vo. Cloth, \$2.50.

MATERIA MEDICA, PHARMACOLOGY, THERAPEUTICS AND PRESCRIPTION WRITING FOR STUDENTS AND PRACTITIONERS. By Walter A. Bastedo, M.D. Fourth edition. Philadelphia, W. B. Saunders Company, [c. 1937]. 778 pages, illustrated. 8vo. Cloth, \$6.50.

A TEXTBOOK OF MEDICINE. By American Authors. Edited by Russell L. Cecil, M.D. Fourth edition. Philadelphia, W. B. Saunders Company, [c. 1937]. 1416 pages. 8vo. Cloth, \$9.00.

CLINICAL PARASITOLOGY. By Charles F. Craig, M.D. and Ernest C. Faust, Ph.D. Philadelphia, Lea & Febiger, [c. 1937]. 733 pages, illustrated. 8vo. Cloth, \$8.50.

THE CARE AND FEEDING OF BABIES IN WARM CLIMATES. By Charles J. Bloom, M.D. New Orleans, Pelican Publishing Company, [c. 1937]. 358 pages, illustrated. 8vo. Cloth, \$2.75.

THE DIARY OF A SURGEON IN THE YEAR 1751-1752. By John Knyveton, M.D. Edited and transcribed by Ernest Gray. New York, D. Appleton-Century Company, Inc., [c. 1937]. 322 pages, illustrated. 8vo. Cloth, \$2.50.

DISPENSARY UROLOGY. By Nelse F. Ockerblad, M.D. and Hjalmar E. Carlson, M.D. Minneapolis, Burgess Publishing Company, [c. 1937]. 84 pages, illustrated. 4to. Cloth, \$2.00.

NERVOUS AND MENTAL DISEASES FOR NURSES. By Irving J. Sands, M.D. Third edition, reset. Philadelphia, W. B. Saunders Company, [c. 1937]. 321 pages, illustrated. 8vo. Cloth, \$2.00.

CLINICAL ENDOCRINOLOGY. By Samuel A. Loewenberg, M.D. Philadelphia, F. A. Davis Company, [c. 1937]. 825 pages, illustrated. 8vo. Cloth, \$8.00.

TABER'S DIGEST OF MEDICAL TERMS. Medicine, Surgery, Nursing, Dietetics, Physical Therapy. By Clarence W. Taber and Associates. Philadelphia, F. A. Davis Company, [c. 1937]. 586 pages. 12mo. Cloth, \$3.00.

THE SOCIAL COMPONENT IN MEDICAL CARE. A Study of One Hundred Cases From the Presbyterian Hospital in the City of New York. By Janet Thornton. New York, Columbia University Press, [c. 1937]. 411 pages. 8vo. Cloth, \$3.00.

EVE'S DOCTOR. By Signe Tokavig. New York, Harcourt, Brace and Company, [c. 1937]. 311 pages. 8vo. Cloth, \$2.50.

SYNOPSIS OF GENITOUREINARY DISEASES. By Austin I. Dodson, M.D. Second edition. St. Louis, The C. V. Mosby Company, [c. 1937]. 294 pages, illustrated. 12mo. Cloth, \$3.00.

THE HUMAN BODY. By Logan Clendenning, M.D. Third edition. New York, Alfred A. Knopf, [c. 1937]. 443 pages, illustrated. 8vo. Cloth, \$3.75.

40,000,000 GUINEA PIG CHILDREN. By Rachel L. Palmer and Isidore M. Alpher, M.D. New York, The Vanguard Press, [c. 1937]. 249 pages. 12mo. Cloth, \$2.00.

THE MAN TAKES A WIFE. A Study of Man's Problems In and Through Marriage. By Ira S. Wile, M.D. New York, Greenberg Publisher, [c. 1937]. 277 pages. 8vo. Cloth, \$2.50.

SYPHILIS. The Next Great Plague To Go. By Morris Fishbein, M.D. Philadelphia, David McKay Company, [c. 1937]. 70 pages, illustrated. 12mo. Cloth, \$1.00.

FLYING VISTAS. The Human Being, as Seen Through the Eyes of the Flight Surgeon. By Isaac H. Jones, M.D. Philadelphia, J. B. Lippincott Company, [c. 1937]. 255 pages, illustrated. 12mo. Cloth, \$2.00.

THE HOME TREATMENT OF SPASTIC PARALYSIS. Written in a simple, practical way with many detailed drawings. By Percy M. Girard, M.D. Philadelphia, J. B. Lippincott Company, [c. 1937]. 130 pages, illustrated. 12mo. Cloth, \$2.00.

TEN MILLION AMERICANS HAVE IT. By S. William Becker, M.D. Philadelphia, J. B. Lippincott Company, [c. 1937]. 220 pages, illustrated. 12mo. Cloth, \$1.35.

THE SPAN OF LIFE. By William M. Malisoff, Ph.D. Philadelphia, J. B. Lippincott Company, [c. 1937]. 339 pages. 8vo. Cloth, \$2.50.

PNEUMOTHORAX DIRECTORY. El Paso, American College of Chest Physicians, [c. 1937]. 34 pages. 8vo. Paper, \$1.00.

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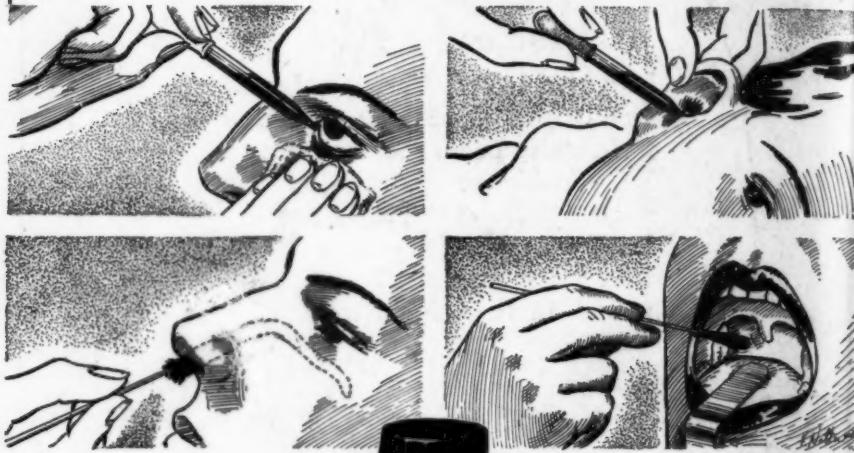
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